



CALIBRATED FOR INTEGRATION

SCIENCE EDUCATION INSTITUTE
DEPARTMENT OF SCIENCE AND TECHNOLOGY
ANNUAL REPORT 2015



08

Contents

Science Education Institute ANNUAL REPORT 2015

03
Introduction

04
Message from the Secretary

05
Message from the Director

06
Highlights

08
Developing Human Resources
in Science and Technology



34



50



80

34
Building Science and
Technology Culture

50
Strengthening Capabilities in
Science and Technology Education

76
Creating Communication and
Information Links

80
Gender Development

86
S&T Capacity Building Activities

88
Institutional Awards
and Recognition

88
Loyalty Recognition

89
Managing Resources

90
Organizational Chart

91
Key Officials

92
Officers and Staff

Introduction



Science that empowers lives.

This theme reiterates the indisputable fact that science is the foundation of tomorrow's technologies, jobs and well-being, and its learning should therefore benefit not just students but society in general.

While the Science Education Institute of the Department of Science and Technology operates out of the fundamental need to provide educational opportunities to young people and help gain for the country a critical mass of S&T professionals, deepening the relationship between science and society and reinforcing public confidence in science is embedded in its principles.

DOST-SEI facilitates an informed engagement among its various stakeholders – from the professionals in the academe and industry to community leaders and citizens in general. Its efforts to generate interest in, and attitudes towards, science and technology must go beyond solely educational and need to be framed and understood in a wider social, cultural and political context.

This socially inclusive approach is necessary to achieve what is often called "scientific and technological literacy." Only within this condition can the knowledge and understanding of science among the youth translate into effective craft and scientific values that will strengthen our collective power to move our country forward.

Science is the foundation of tomorrow's technologies, jobs and well-being, and its learning should therefore benefit not just students but society in general.

MESSAGE FROM THE *Secretary*

More than a quarter century of service to the Filipino people is truly an exemplary feat, and I congratulate the Science Education Institute (DOST-SEI) for attaining this significant milestone.

The DOST, through the SEI is proud to be able to give our youth access to quality education in the leading public and private institutions nationwide. Improvements in science, technology, engineering and mathematics education across all levels are critical to preparing our future scientists with the skills they need to meet the demands of a growing economy.

Driven by its mandate, the Institute has succeeded in bringing forth a tremendous increase in the number of applicants to its scholarship programs. Our call for more scientists and engineers is being heeded by our youth. We are optimistic that this new breed of future scientists and engineers will help us in achieving a smarter Philippines through the creation of S&T based solutions, by giving birth to innovations that will make our country become globally competitive and at the same time, improve the lives of the Filipino people.

For our S&T scholars and students, now is the best time to become scientists and engineers. Through enrichment programs, advanced teacher training methods, technology adoption in schools, industry partnerships, research and competitions, and numerous activities highlighted in the 2014 Annual Report, the DOST-SEI promises to provide an exciting and engaging educational environment.

Mabuhay!



MARIO G. MONTEJO

Secretary

Department of Science and Technology



MESSAGE FROM THE *Director*

I am deeply honored to once again share with you the accomplishments of our distinguished Institute during our year in review 2015.

In our core occupation of managing S&T scholarship programs, we continue to experience exceptional gains in the number of applicants resulting from the intensified information campaign that we began in 2014. When it was first implemented, the number of scholars we supported jumped by 21 percent, totaling 12,117. Now a year later, we experienced an even greater 55-percent surge, so that in 2015 we supported more than 18,700 scholars.

DOST-SEI is escalating the development of highly qualified human resources, one of the key drivers to regional growth and advancement, and amidst all this was the backdrop of the ASEAN integration, a historic phase wherein we, as a nation, must leverage interaction and cooperation to enhance our connectivity in the region.

It is important to note that the Institute has thus broadened its outlook for the enhancement of its capacity development programs, student mobility, research collaborations, regional academic conferences, and various activities that unleash the full capabilities of our students and academic institutions.

The real testament to our overall success can be seen through the many individual achievements celebrated by our students and staff. The tremendous success we continually enjoy every year would not be possible without their dedication and hard work, complemented by our results-oriented partnerships with academe, professionals, and various educational organizations. These have all shown equal commitment to work together to equip our students, and science and math teachers with advanced Science, Technology, Engineering and Mathematics education and teaching capability.

With the integration of the ASEAN community comes a new and more exciting phase in our learning journey. Backed by our various stakeholders in the private and public sectors, we will continue to play a key role in the development of S&T human resources and help our nation take its stand in the transformation of our region. On behalf of all of us at the Institute, I extend to you our deepest gratitude.



JOSETTE T. BIYO

Director



Highlights

Number of scholars on the rise

- In 2015, the DOST-SEI supported a total of 18,765 scholars, a 55-percent jump from the 2014 total of 12,117.
- Region IV-A (CALABARZON) had the highest number of scholars with 2,349 or 14.81 percent of the total number. This was followed by the National Capital Region (NCR) and Region VII (Central Visayas Region)
- Number of scholars taking up Masters and PhD in science education is higher than 2014 attainment by 131 percent and 32 percent, respectively.
- For the Junior Level Science Scholarship (JLSS), volume of examinees increased by 114 percent from 2014.
- Foreign PhD scholarship enriches ERDT Faculty Development Programs, with 46 faculty members awarded with the scholarship.
- 140 scholars from all over the country completed the JENESYS 2.0 youth exchange program between Japan and ASEAN member-states from March 2-10, 2015. The Institute conducted a pre-departure orientation to scholars on the program's overview, objectives, and expectations.
- At the end of Academic Year 2014-2015, the DOST-SEI Undergraduate Scholarship Programs produced 781 scholar-graduates, 23 percent of whom were awarded with honors during the annual "In Touch with Excellence" recognition ceremony.

New programs and policies tackled

- A reorientation meeting attended by Regional Technical Coordinators, Regional Scholarship Project Staff and DOST-SEI officials and staff took place in General Santos City, South Cotabato on December 2-3, 2015. New policies and procedures governing the S&T Scholarship Programs were shared, and new targets were set for the effective and efficient delivery of services to various stakeholders.
- The research entitled *Human Resources in Science and Technology in the Philippines*, published by the Research Unit of DOST-SEI, was launched during the roundtable discussion aimed at reviewing and updating the list of priority S&T courses offered under the DOST-SEI Scholarship Programs.

- The ERDT, with its two lead agricultural consortium universities Central Luzon State University and University of the Philippines-Los Baños, successfully organized and conducted the 4th ERDT Congress last July 20, 2015 with the theme *"Agriculture and Science and Technology for Inclusive Growth."*
- The 12th ERDT conference held in December 2015 also highlighted Human Resource Development in Agriculture, with emphasis on attaining sustainable mechanization in Asia and the Pacific.
- The 8th ASEAN University Network-Southeast Asia Engineering Education Development Network (AUN/SEED-Net) Regional Conference on Electrical and Electronics Engineering (RCEEE) 2015 was held in November together with the 11th ERDT Conference on Semiconductor Materials and Electronics, Information and Communications Technology and Energy. The joint conference shared updates on technology, research, and other collaborative activities related to the engineering field.

International linkages highlighted

- *Moving Towards ASEAN Integration* was the theme of the 2nd National Research Conference in Science and Mathematics Education held in October 2015. The event stressed the importance of ensuring that all research and innovations in SME should meet international standards for greater marketability.
- The ASTHRDP-NSC conducted a benchmarking tour of Asian countries with the objective of raising the competitiveness of the consortium through collaboration with higher education institutions in Asian countries, namely: Malaysia, Thailand, South Korea and Taiwan.

Campaigns attract more scholars

- The 1st Can Satellite Competition was held with a total of 36 students and 12 coaches participated in a training held on August 24-28, 2015 and in the actual competition held in UP Los Baños during the 2015 World Space Week Celebration.
- The #Push4Science campaign successfully promoted the DOST-SEI Undergraduate Scholarship Programs, reaching out to municipalities that previously lacked examinees in

2014. It covered 18 out of 103 target municipalities or 17.4 percent in 2015 and served a total of 1,466 students from schools in several districts nationwide.

- For the other municipalities that were not directly reached, Scholarship Campaign Kits were provided to the PSTCs and the university officials for their respective scholarship caravans. Posters, brochures and other collaterals were also distributed to all DOST attached agencies in Metro Manila to promote the scholarship program.
- The Science Explorer interactive science learning bus expanded its reach to more public elementary and secondary schools in the country. Additionally, the Climate Science Youth Camp, which ran from April 12-21, 2015, offered new and exciting activities focusing on Oceanography and Meteorology.

Science and Math champs bring home honors

- As in the previous years, the Philippine Mathematical Olympiad and its global counterpart the International Mathematics Olympiad showcased the math prowess of Filipino students who brought home Silver and Bronze medals and Honorable Mention certificates. Likewise, more students received Prizes and Certificates of High Distinction in the Australian Mathematics Olympiad.
- A total of 609 students from 210 schools, who won in international science and mathematics competitions were awarded with YES medals during the YES Awarding ceremonies in February, 2016. The number of awardees represents a 30% increase from 2014, highlighting the continuing exemplary achievement of Filipino youth in the fields of science and mathematics.

Teacher competencies enhanced

- A total of 428 teachers benefited from two-phased training program with the goal of developing the capacity of teachers in innovative teaching approaches and utilizing resources using STEM concepts that are aligned with the K to 12 curriculum.
- The Science Teacher Academy for the Regions (STAR) project held a three-day workshop to plan targets for STAR trainings up to 2019 and was attended by 34 science and mathematics trainers.

- Hearing impaired students were the focus of a training workshop specifically designed to help teachers be more effective and creative in teaching science. Additionally, another project was implemented to help establish gender-responsive environment in the teaching and learning of secondary science.

- Elementary teachers from schools with predominantly indigenous students went through a four-phased training that aims to equip them with capabilities to teach science concepts and use local suitable materials and ideas for more culture-based learning. DOST-SEI launched this project to address inclusive development in education.

Innovative teaching and learning methods introduced

- Courseware modules in science and mathematics were developed into a mobile application that can be downloaded for free using smartphones and tablets to help promote the use of mobile technology in education.
- The Institute also replicated and distributed Interactive Mathematics Courseware for Grades 1-6 and Interactive Science and Mathematics Courseware for Grades 7 and 8 to help improve the teaching and learning of these subjects among students in public elementary and secondary schools.
- A compendium on the 2011-2014 project dubbed *Search for Innovative Practices in Managing Large Classes for Effective Teaching and Learning of Science and Mathematics* was printed and disseminated to schools to be applied and modified by teachers managing large classes.
- In December 2015, Project ARISE was launched with the intention of promoting collaborative learning through various digital teaching technologies and meet the needs of the 21st century education in the context of the K-12 curriculum.

As South East Asia forms a tighter economic community comprising 670 million people – and potentially establishing the sixth largest economy in the world – the need to harmonize policies for cooperation and integration among its member countries has become the crucial driving issue.

In our education sector, major shifts are taking place that include the K to 12 program, intensified knowledge exchange and foreign internships, among others. This adds a more expansive dimension to the Science Education Institute's mission

*Developing Human Resources
in Science and Technology*



of accelerating the development of the country's S&T human resources. Equipping our educational institutions and our students with the skills and competencies required by industries and the market place on a regional and global level is a must to ensure the youth's employability in this era of economic integration and increased competition. Producing internationally competent human resources through quality higher education will lead to a stronger economy, better governance, and a more productive society.

SCIENCE AND TECHNOLOGY SCHOLARSHIP PROGRAMS

S&T Scholarship programs attract more students.

Having intensified its initiatives to promote its S&T Scholarship programs, the Institute reports a yearly upsurge in the number of scholars both in the undergraduate and graduate levels. It is thus able to provide quality education to deserving students and contribute to the development of a scientifically and globally competitive citizenry.

In 2015, the DOST-SEI supported a total of 18,765 scholars, a 29 percent jump from the 2014 total of 14,495.

Of the 2015 figure, 85 percent or a total of 15,858 scholars were supported in the baccalaureate degree programs, 12 percent or 2,282 scholars in the master's degree programs and three percent or 625 scholars in the doctoral degree programs. (see figure 1)

Scholars taking up baccalaureate degrees were supported through various Republic Acts (RAs): RA 2067 (Merit Scholarship Program), RA 7687 (S&T Act of 1994) and RA 10612 (Fast-tracked S&T Scholarship Act of 2013).

The two previous scholarship programs are open to incoming college students,

while the third is available to talented and deserving third year college students pursuing degrees in the priority areas of science and technology.

Table 1 shows the regional distribution of DOST-SEI undergraduate scholars. Report shows that as of end of 2015, SEI supported a total of 15,858 scholars. Of the said figure, 5,606 or 35.35 percent are new scholars, 9,470 or 59.72 percent are continuing scholars and 782 or 4.93 percent are scholar-graduates. Based on their home region, Region IV-A (CALABARZON) had the highest number of scholars with 2,349 or 14.81 percent of the total number. This was followed by the National Capital Region (NCR) and Region VII (Central Visayas Region) with 1,954 scholars or 12.32 percent and 1,747 scholars or 11.02 percent, respectively.

Meanwhile, the Autonomous Region of Muslim Mindanao (ARMM) had the least number of scholars with 167 or 1.05 percent of the total number. Measures had been done to increase the number of qualifiers for the region such as Push for Science, review and enrichment programs for applicants among others. (see table 1)

S&T Graduate Programs see huge jump in number of scholars.

The S&T Graduate Scholarship Programs include the Capacity Building Program in Science Education, Accelerated Science and Technology Human Resource Development Program (ASTHRDP) and Engineering Research and Development for Technology (ERDT).

Capacity Building Program

In 2015, SEI supported a total of 132 MS and 135 PhD scholars in science education – higher than 2014 attainment by 131 percent and 32 percent, respectively. This program aims to increase the number and improve the quality of S&T faculty members in Teacher Education Institutions that constitute the National Consortium in Graduate Science and Mathematics Education (NCGSME). The member-universities include: Ateneo de Manila University, Bicol University, Central Luzon State University, De La Salle

University, Mariano Marcos State University, Mindanao State University-Marawi City, Philippine Normal University, University of San Carlos, Western Visayas State University and Western Mindanao State University.

Accelerated Science and Technology Human Resource Development Program (ASTHRDP)

In 2015, the program supported a total of 1,317 MS and 312 PhD scholars – higher than 2014 by 10 percent and 32 percent, respectively. The ASTHRDP aims to improve the country's global competitiveness and capability to innovate through S&T and to accelerate the production of high-level human resources needed for research and development in S&T. The National Science Consortium is composed of the following universities: Ateneo de Manila University, Central Luzon State University, De La Salle University, Mindanao State University-Iligan Institute of Technology, University of the Philippines-Diliman, University of the Philippines-Los Baños, University of the Philippines-Manila, University of the Philippines-Visayas, University of San Carlos, University of Sto. Tomas and Visayas State University.

Engineering Research and Development for Technology (ERDT)

In 2015 SEI supported a total of 833 MS and 178 PhD scholars – higher than 2014 by 27 percent and 38 percent, respectively. Similar to the other graduate scholarship programs, ERDT is on track to help the country attain a critical mass of Masters and Doctoral degree holders who will perform high-impact research in engineering and technology that are aligned with the National Science and Technology Plan (NSTP) and Medium-Term Development Program (MTDP). Eight universities make up its consortium offering quality masters and doctoral degrees in various engineering and technology fields. The ERDT Consortium is composed of: Ateneo de Manila University, De La Salle University, Central Luzon State University, Mapua Institute of Technology, Mindanao State University-Iligan Institute of Technology, University of the Philippines – Diliman, University of the Philippines – Los Baños, and University of San Carlos in Cebu. (see table 2)

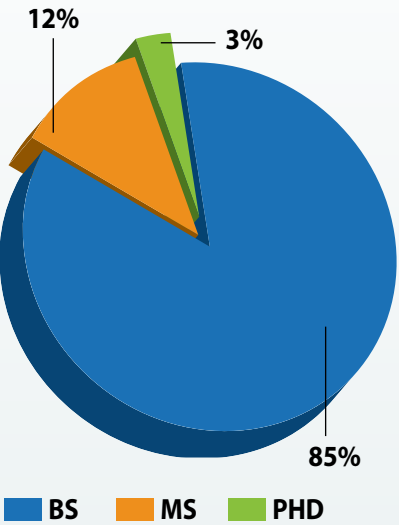


FIGURE 1: Percentage of DOST-SEI Scholars Supported by Degree Program

TABLE 1: Regional Distribution of DOST-SEI Undergraduate Scholars				
Region	Status			Total
	New	Continuing	Graduated	
CAR	186	294	20	500
I	281	428	24	733
II	199	314	22	535
III	456	870	86	1,412
IV-A	786	1,431	132	2,349
IV-B	162	278	20	460
V	429	778	64	1,271
VI	448	826	61	1,335
VII	582	1,084	81	1,747
VIII	335	470	28	833
IX	142	221	6	369
X	288	440	25	753
XI	253	303	22	578
XII	159	205	32	396
ARMM	67	96	4	167
CARAGA	190	253	23	466
NCR	643	1,179	132	1,954
Total	5,606	9,470	782	15,858

Number of SEI-DOST scholars rising annually

The Institute’s efforts to promote its various scholarship programs have resulted in a steady upsurge in the number of municipalities being served by the campaign. Over the past five years, the percentage of municipalities served has climbed from 72 percent in 2011 to 95 percent in 2015. Out of 1,655 total number of municipalities and congressional districts, 1,571 now host their own scholars, while the number of municipalities that have no scholars dwindled from 470 to 84 in the same five-year period.

Year	Total Number of Municipalities and Congressional Districts*	NO. OF MUNICIPALITIES		Percentage of Municipalities Served Against Total Number of Municipalities
		with scholar	without scholar	
2011	1,653	1,183	470	72%
2012	1,653	1,221	432	74%
2013	1,655	1,295	360	78%
2014	1,655	1,443	212	87%
2015	1,655	1,571	84	95%

TABLE 2: Distribution of Graduate S&T Scholars by Graduate Scholarship Program

Program	Level	Status			Total
		New	Continuing	Graduated	
Science Education	MS	81	45	6	132
	PHD	40	87	8	135
ASTHRDP	MS	334	633	350	1,317
	PHD	94	161	57	312
SEI*	MS	320	574	331	1,225
	PHD	94	158	54	306
PCAARRD	MS	0	7	8	15
	PHD	0	3	1	4
PCHRD	MS	14	45	6	65
	PHD	0	-	2	2
PCIEERD	MS	0	7	5	12
	PHD	0	-	-	-
ERDT	MS	221	340	272	833
	PHD	43	101	34	178
Total for All Programs	MS	636	1,018	628	2,282
	PHD	177	349	99	625

More college students take 2015 JLSS Examination.

Following the implementation of Republic Act 10612 or the Fast-tracked S&T Scholarship Act of 2013, a total of 3,736 third year college students enrolled in Science, Technology, Engineering and Mathematics courses nationwide took the 2015 JLSS examination in 56 testing centers nationwide on July 12, 2015. This number represents an increase of 114 percent from the 2014 examinees.

As shown in *Figure 2*, Region VII (Central Visayas Region) had the highest number of examinees with 516 followed by Region VI (Western Visayas Region) and Region III (Central Luzon Region) with 442 and 341 examinees, respectively. The Cordillera Administrative Region (CAR) had the lowest number of examinees with only 28 examinees followed by the Autonomous Region of Muslim Mindanao (ARMM) and Region IV-B (MIMAROPA) with 42 and 65 examinees, respectively.

The examination has two course categories (Science and Engineering) with five subtests (Logical Reasoning, Science and Engineering, Mathematics,

English Proficiency, and Teaching Aptitude Inventory), and has a total time allotment of 2 hours and 55 minutes.

A total of 1,030 college students qualified in the 2015 JLSS Examination representing 28 percent of the total number of examinees. The National Capital Region had the highest number of qualifiers registered at 105 or 50 percent of the 210 examinees in the region followed by Region VI with 104 qualifiers (24 percent) and Region VII with 101 qualifiers (20 percent). On the other hand, ARMM had the lowest number of qualifiers registered at 4 or 10 percent of the total examinees in the region (*see figure 3*), followed by CAR with 10 qualifiers (56 percent) and MIMAROPA with 16 qualifiers (25 percent).

The JLSS offers higher education scholarships to deserving students in STEM courses in their third year of undergraduate study, and provides incentives for them to become secondary school teachers, especially in their home regions, in order to contribute to the production of the country’s S&T human resource and encourage more students to pursue S&T-related careers.

THIRD YEAR COLLEGE STUDENTS FROM VARIOUS UNIVERSITIES IN THE EASTERN VISAYAS REGION TAKE THE 2015 JLSS EXAMINATION



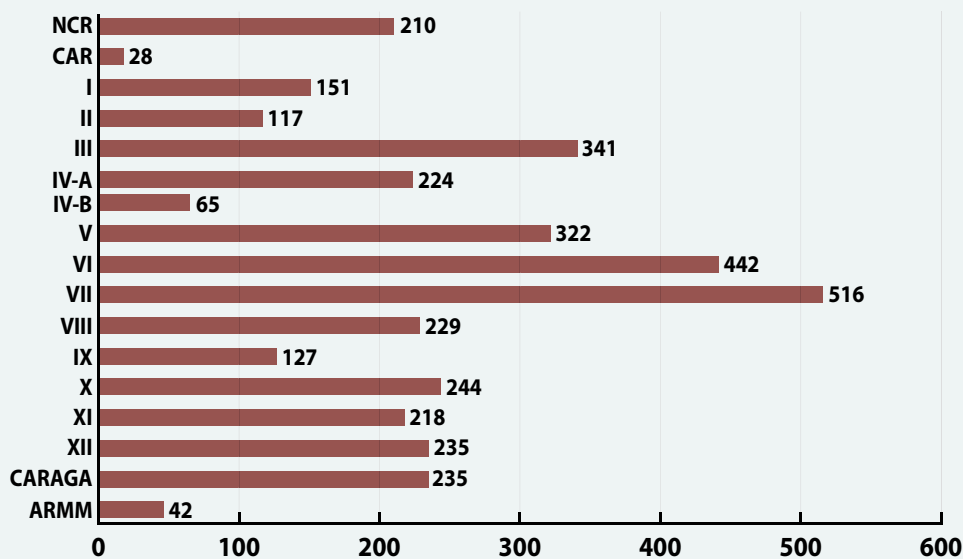


FIGURE 2: Distribution of 2015 JLSS examinees by home region

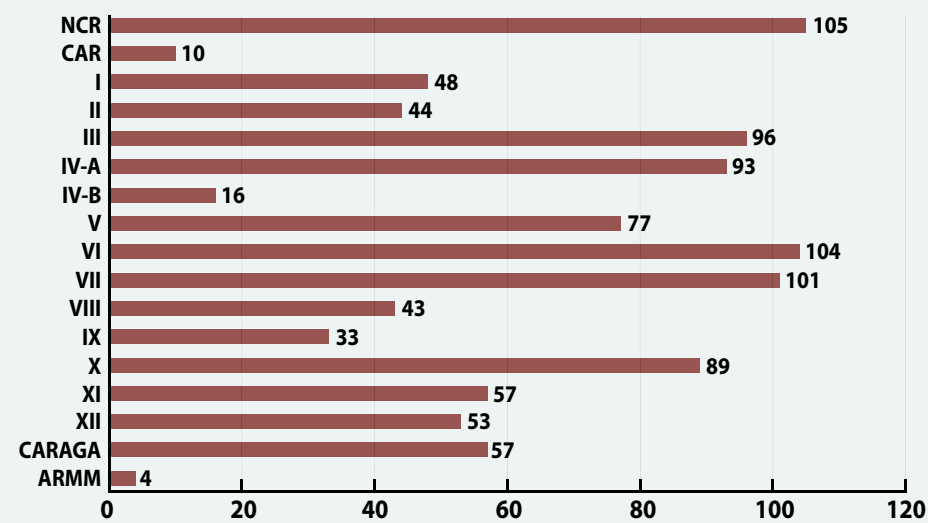


FIGURE 3: Number of Qualifiers per Region

TABLE 3: Number of Scholars who availed the Sandwich Program

Year	No. of Grantees	Status
2008	1	Graduated
2009	3	Graduated
2010	3	Graduated
2011	7	Graduated
2012	5	4 Graduated, 1 Returned
2013	12	6 Graduated, 6 Returned
2014	9	3 Graduated, 2 Returned, 4 On-going
2015	8	2 Returned, 3 On-going, 3 Approved
Total	48	27 Graduated, 11 Returned, 7 On-going, 3 Approved

ERDT Sandwich Program continues fruitful exchange.

The ERDT Sandwich Program is a fellowship that is offered to ERDT local graduate scholars to perform part of their researches in a university or research institution abroad for a maximum of one year. Aside from establishing linkage with an available laboratory for the chosen research topic, a scholar will also be able to gain broader approach and technical knowledge and experience in inter-cultural exchange.

As of November 2015, there have been 45 scholars given opportunities to conduct their researches with financial assistance under the ERDT Sandwich Program. Three more scholars are bound to do their research works in internationally reputable academic institutions in the following year. Out of the 45 grantees, 27 already graduated, 11 have already returned to the Philippines and are expected to graduate, and seven are still abroad conducting their researches.

The scholar applies to the Sandwich Program and the application is deliberated by the Fellowship Selection and Screening Committee (FSSC) of each of the ERDT Consortium member-universities. The FSSC gives priority to scholars pursuing research with topics identified to be gaps in the local R&D and cannot be completed locally due to lack of physical and technical resources, and expertise. The awarded scholars are expected to finish their theses or dissertations, contribute to technical knowledge, and transfer the technology/ techniques that they have learned through the Sandwich Program.

Table 3 shows the yearly distribution of slots and the actual number and status of scholars who availed of the Sandwich Program.

ERDT Faculty Development Programs enhance faculty learning.

Foreign PhD Scholarships

To improve the faculty capability of UP Diliman College of Engineering, faculty members are given opportunities to pursue advanced degrees in reputable, highly recognized international

institutions abroad, preferably in the areas of specialization that need to be strengthened, through the ERDT Faculty Development Program – Foreign PhD Scholarship.

From 2008-2015, there are 46 faculty members who have been awarded with the scholarship. Three scholars have returned and are now doing minor revisions in their dissertations. Three scholars have requested extensions on their scholarships. Contracts of 6 scholars were terminated due to varying reasons. Nineteen scholars are still abroad and one scholar has been awarded with the scholarship this 2015 and expected to leave in 2016.

Post Doctoral Grant

The ERDT Post-Doctoral Grant is offered to faculty members who have doctoral degrees. The grant allows retooling and training of faculty members to ensure that researches conducted and proposed under the ERDT program are current and relevant. The grant is for a minimum of two months and a maximum period of one year with financial support.

There are already 12 recipients of the grant: Six faculty members received the grant in 2009, two in 2010, two in 2012, one in 2014, and one in 2015.

Faculty Research Dissemination Grant

The ERDT Faculty Research Dissemination Grant (FRDG) gives opportunity to faculty members of the Consortium to present their researches to an international audience belonging to the same field of specialization. Every year, this grant is awarded to deserving faculty members who wish to participate in international conferences or as a support to publish papers in ISI journals. This is similar to the Research Dissemination Grant to local graduate scholars. Over the years, a significant number of conference participation has been observed signifying a fertile research environment in engineering.

To date, a total of 303 research dissemination grants have been awarded since the beginning of ERDT. In 2015, the ERDT awarded the FRDG to 62 faculty recipients.

Faculty Research Grant

The Faculty Research Grant is implemented to help faculty members who are currently enrolled in the ERDT supported graduate programs in an ERDT member university to complete all their requirements leading to a successful thesis/dissertation defense.

Recipient of this grant is considered as an ERDT scholar with lateral entry and shall be awarded with the grant for a period of one year for Master's and two years for PhD. In 2015, seven faculty members were awarded the grant. Table 4 shows the details of these recipients.

TABLE 4: Recipients of the Faculty Research Grant

Recipient	Degree and Course	University	Research Topics
Dulay, Ann E.	PhD Electronics and Communications Engineering	DLSU	Dynamic Hardware-Based Narrowband and Wideband Channel Emulator for Modem Testing in Low-Voltage Indoor Power-Line Communication Scenarios
Zalatar, Willy F.	PhD Industrial Engineering	DLSU	A Predictive Model of Corporate Sustainable Development Using Lean Manufacturing Practices
Lozano, Lorafe F.	MS Industrial Engineering	USC	Development of an Enterprise Resource Planning System to Address Cost and Operational Issues Experienced by Micro, Small and Medium Retailers in Cebu
Macuha, Richmark N.	MS Civil Engineering	UPD	Comparison of Analytical and Numerical Models in Estimating the Yield of Streambed Infiltration Gallery
Montealegre, Charlimagne M.	MS Chemical Engineering	UPD	Effect of Blumea Balsamifera Extract on the Crystallization Behavior of Calcium Oxalate
Victor, Jaime Angelo S.	MS Civil Engineering	UPD	Landslide Susceptibility Modeling and Mapping of Antipolo Rizal Through Heuristic, Deterministic and Statistical Methodologies
Santos, Ervin S.	MS Mechanical Engineering	UPD	Influence of Different CME-Diesel Blends on the Injection Parameters of a Common-Rail Direct Injection Diesel Engine

TABLE 5: STLAP activities conducted by various DOST-SEI scholars' organizations				
NAME OF SCHOLARS' ORGANIZATION	REGION/ UNIVERSITY	TITLE OF ACTIVITY	DATE	NO. OF PARTICIPANTS
DOST-SEI PUP DOST Scholars' Organization (DOST-SEI PSO)	NCR/ PUP-Manila	2015 General Assembly with a theme, #INSPIRED	June 6, 2015	200
DOST-XI Alumni Association	XI	Development of Tracer System and Experts Pool of DOST Scholar-Graduates in Region XI	June-December 2015	600
DOST-I	I	2015 DOST Scholars' Summit	August 31, 2015	225
DOST-XI Scholars' Association	XI	2015 DOST-XI Scholars' Congress	November 28, 2015	210
DOST Scholars' Association (DOSTSCAN)	NCR/RTU	Let's Roll: DOST Scholars' Collaboration Towards Excellence	December 17-18, 2015	77



SOEP PARTICIPANTS AT THE UNIVERSITY OF THE PHILIPPINES-DILIMAN TAKE THEIR POSTTEST EXAMINATION

300 DOST SCHOLARS GATHERED AT THE AYALA MALLS LEGZPI CITY FOR THE “SCHOLARS’ SUMMIT”



Science and Technology Learning Assistance Program (STLAP) continues.

Summer Orientation and Enrichment Program

Under the STLAP program, which is designed to help scholars asses and enhance their skills as well as to develop their character, the *Summer Orientation and Enrichment Program (SOEP)* drew a total of 2,928 incoming RA 7687 freshman scholars nationwide. This month-long refresher course focused mainly in four areas: Basic English, College Mathematics, Physics and Psycho-Social Skills Development. Tests were given to the participants on the first and last days of the program, to assess their knowledge in the above-mentioned subjects and to determine the gains afterwards.

Due to shift in the school calendar of some universities, the SOEP in the National Capitol Region (NCR) was conducted in two batches. Those whose classes started in June attended the SOEP at the Technological University of the Philippines-Manila from May 4 to 29, 2015 while those whose classes started in August had their SOEP at the University of the Philippines-Diliman from June 1 to 29, 2015.

Summer Practical Training Program

A total of 769 scholars participated in the *Summer Practical Training Program (SPTP)*, which required them to undergo a minimum of six weeks or 240 hour, of practical experience along their field of specialization in a government agency or private company. The program is conducted in the summer prior to their last year in college.

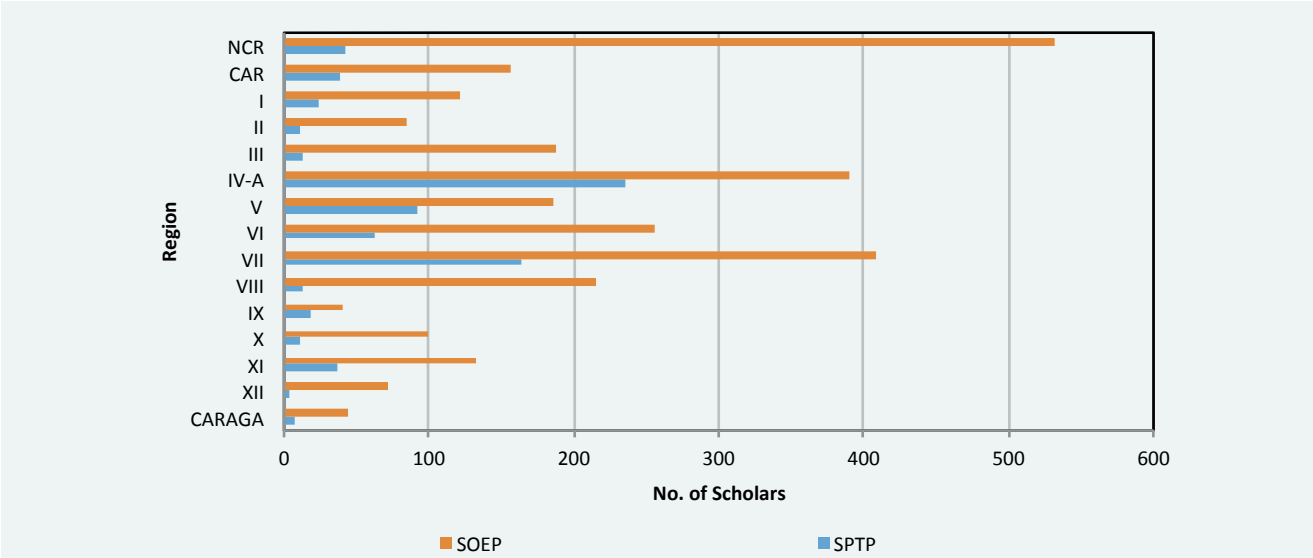


FIGURE 4: Regional Distribution of Scholars who Participated in the SOEP and SPTP

A training supervisor is tasked to design a program of activities, orient them in office regulations, assign duties and responsibilities, discuss the output expected of them at the end of their training, and evaluate their performance.

DOST-SEI Scholars complete JENESYS 2.0

A total of 140 university students, out of 473 applicants from all over the country, successfully completed the *Japan-East Asia Network of Exchange for Students and Youths (JENESYS 2.0)* from March 2 to 10, 2015.

The JENESYS 2.0 is a youth exchange program between Japan and ASEAN Member States with the aim of promoting Japanese attractions, strengths and values, strengthening diplomatic relations among countries, fostering internationalization, and revitalizing the economy.

DOST-SEI evaluated the applicants based on the qualifications set by the Japan International Cooperation Center (JICE). Auxiliary information were also considered in the selection of participants which included their universities/colleges and courses, home origin, academic awards,

Never be too big to ask questions. Never know too much to learn something new.

– Og Mandino



MR. SUMIO ITO, PRESIDENT OF ITO SEISAKUSHO CO., LTD, EXPLAINS HOW HIS COMPANY OPERATES

health condition, and expectations of the program.

SEI, together with the International Technology Cooperation Unit of the Department of Science and Technology, conducted a pre-departure orientation on February 27, 2015 at the DOST Executive Lounge, where they were briefed on the program's overview, objectives and expectations.

Director Tatsuo Kitagawa of Japan Information and Culture Center, Embassy of Japan, explained that JENESYS 2.0 is a great opportunity for the participants to gather insights relevant to their current or future researches. Jenny De Jesus of JICE, Embassy of Japan and Cristabeth Madrigal of the Social Marketing Division, National Youth Commission provided the overview of the JENESYS 2.0 and the pre-departure briefing, respectively.

Supervised by DOST employees, the Philippine delegation went through most of the itinerary in the following Prefectures: Tochigi, Mie and Aichi.

Activities included:

- Visit to historical places and the National Museum of Emerging Science and Innovation best known as Miraikan, where participants interacted with booths showcasing Japan's latest innovation
- Courtesy call to the Officials of the above prefectural governments
- Visit to different factories or corporations where they received exposure to cutting-edge technologies and gathered insights for their current or future researches
- Interaction with the Japanese students of their assigned universities
- Immersion in certain villages where they experienced first-hand the Japanese way of life

The program culminated with the presentation of each group's output based on the following measures: knowledge about Japan before their visit; findings about Japan gained through the program; and an action plan detailing the project which they would implement relative to their experiences in Japan.

A JAPANESE WOMAN TEACHES AN ASTHRDP SCHOLAR HOW TO WEAVE CLOTH USING INDIGENOUS MATERIALS IN TAIKI TOWN, MIE PREFECTURE

THE JENESYS PARTICIPANTS WITH THE STUDENTS OF THE MIE SENIOR HIGH SCHOOL STUDENTS



Testimonials



BRYAN B. PAJARITO, D. ENG.
Department of Chemical Engineering
UP Diliman

"The Faculty Research Dissemination Grant of ERDT helps me share my laboratory's research results to a wider audience. The Grant also keeps me updated on recent results related to polymers and materials."



JAN ALAIN CORVERA
MS ECE, Ateneo de Manila University
2015 ERDT Sandwich Program Recipient
Scuola Superiore Sant'Anna, Italy

"The ERDT Post Doc Grant provided me the opportunity to carry out pure research work that I have hungered since after finishing my PhD."



JAN ALAIN CORVERA
MS ECE, Ateneo de Manila University
2015 ERDT Sandwich Program Recipient
Scuola Superiore Sant'Anna, Italy

"ERDT and Sandwich Program provided me with generous support financially and intellectually towards my goal of becoming a master's student. With the help of the ERDT Sandwich Program, I was able to collaborate with international research laboratories and different researchers in different countries. The Sandwich Program gave me the opportunity to establish international connections. It also helped me improve my view and way of life. I consider ERDT as once in a lifetime opportunity and a memorable experience. I will be forever grateful and shall return this favor to my countrymen."



WILLLY F. ZALATAR
PhD Industrial Engineering
De La Salle University
2015 ERDT Faculty Research Grant Recipient

"ERDT advances science and technology in the Philippines. It provides funding and technical assistance to graduate students pursuing degrees and conducting research in various engineering fields. While conducting research, a scholar will usually incur a lot of research-related expenses such as transportation, school supplies, etc. By providing this (Faculty Research Grant), ERDT encourages more graduate students to pursue MS/PhD degrees related to science and technology without thinking so much of where to get the necessary funding."

NINO CHRISTOPHER B. RAMOS
Assistant Professor
EEEI, UP Diliman
Foreign PhD Scholarship Awardee
Osaka University, Japan

"The ERDT Faculty Development Program has enabled me to bring the Filipino talent on the international stage and develop it further through collaboration and inter-cultural exchanges."

NEVER BE
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NEVER KNOW
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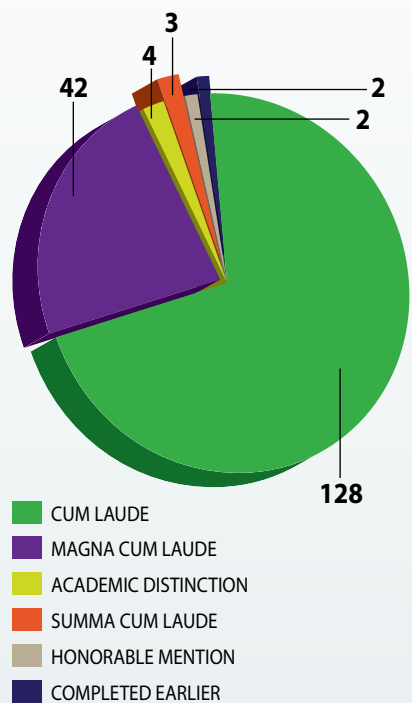


FIGURE 5:
Distribution of 2015
Undergraduate Scholar-Graduates
by Honors Received

RECOGNITION OF DOST-SEI SCHOLARS

“In Touch with Excellence” honors outstanding scholar- graduates.

A total of 167 scholar-graduates, guests and DOST officials attended the annual recognition ceremony dubbed “In Touch with Excellence” in honor of the outstanding 2015 DOST-SEI scholar-graduates (BS and MS with honors and PhD graduates). The activity was conducted on July 28, 2015 at the Philippine International Convention Center, Pasay City.

At the end of Academic Year 2014-2015, the DOST-SEI Undergraduate Scholarship Programs produced a total of 781 scholar-graduates. Out of these graduates, 179 graduated with honors, and one completed the course earlier than the prescribed period. Among those who completed their courses with honors, 128 or 71 percent graduated cum laude, 42 or 23 percent magna cum laude, 4 or 2 percent were awarded with academic distinction, 3 or 2 percent graduated summa cum laude, 2 or 1 percent attained honorable mention, and 1 or 1 percent completed the course earlier than the prescribed period.

Dr. Rowena Cristina L. Guevara, DOST Undersecretary for Scientific and Technological Services and DOST Secretary Mario G. Montejo delivered their inspirational message and keynote speech, respectively.

Secretary Montejo applauded the scholar-graduates for achieving excellence in their respective S&T programs and referred to them as welcome additions to the growing community of scientists, engineers, and innovators whom the country expects to contribute in national development.

SEI Director Dr. Josette Biyo also urged the honorees to continue learning, and promoted the Institute’s graduate scholarships available in highly specialized fields in the sciences and engineering.

In closing, Ernest Nathan Nogales, a BS Chemistry summa cum laude graduate from the University of the Philippines Diliman urged his co-honorees to embody the phrase “serve the people” in its fullest sense.

A DOST-SEI SCHOLAR-GRADUATE RECEIVES
HER MEDAL OF ACADEMIC EXCELLENCE IN
SCIENCE AND TECHNOLOGY



THE GRADUATES OF THE DOST-SEI UNDERGRADUATE SCHOLARSHIP
POSE FOR A GROUP PICTURE WITH DOST AND SEI OFFICIALS (FROM
LEFT: MS. ALICIA ASUNCION, DR. JOSETTE BIYO, USEC. CAROL YOROBÉ,
DR. FABIAN DAYRIT, AND MS. MA. TERESA DE GUZMAN)

DOST Graduate Scholars benefit under Career Incentive Program.

In 2015, a total of 27 scholar-graduates participated in the Career Incentive Program (CIP), which is designed to contribute to the government’s call to strengthen the country’s S&T capabilities and help avert unemployment of DOST scholar-graduates. The overarching objective of the program is to create sustainable reservoir of highly skilled and competent S & T professionals whom the DOST agencies and regional offices and private sector could tap and eventually hire/absorb for employment.

The program is available to MS and PhD scholar-graduates of the ASTHRDP and ERDT who assume the positions of Senior Science Research Specialist and Supervising Science Research Specialist, respectively.

Most of the participants were deployed at the Food and Nutrition Research Institute.

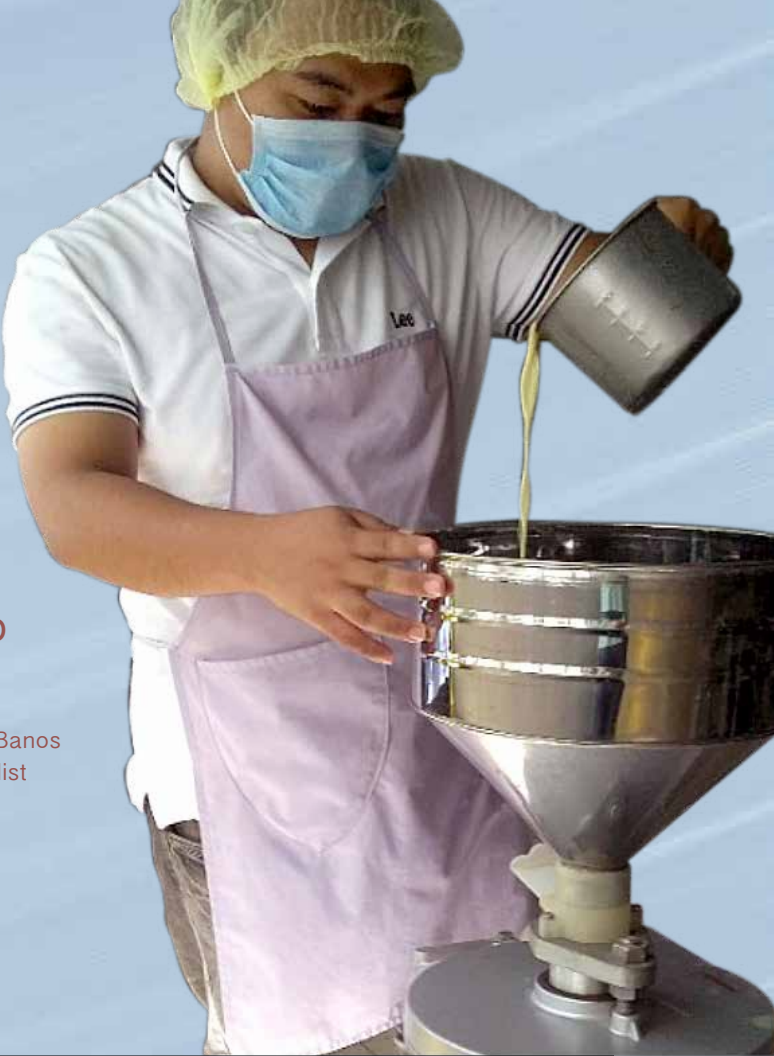
TABLE 6: Distribution of
CIP Researchers by
DOST Offices/Agencies

DOST Offices/Agencies	No. of Researchers
FNRI	12
DOST XI	4
PTRI	3
ITDI	2
SEI	1
PHIVOLCS	1
FPRDI	1
DOST X	1
DOST NCR	1
DOST IV-A	1

“ The research experience gained from being a DOST-SEI CIP Recipient was immensely helpful as it exposed the recipient on how the government’s science arm does research. DOST FNRI honed me not only on how to conduct a sound research but also on how to create a research that would benefit the Filipino people. The agency deepened my understanding on basic research and how to use those data in the development of innovative and healthy food products. The DOST-SEI CIP Program is not only financially rewarding but also intellectually fulfilling.”

MR. IAN JOHN L. CASTRO

ASTHRDP scholar
MS Food Science
University of the Philippines-Los Banos
Senior Science Research Specialist



MS. NEDA A. CATALMA

ASTHRDP scholar
PhD Molecular Biology
and Biotechnology
University of the Philippines-Los Banos
Supervising Science
Research Specialist
Food and Nutrition Research Institute

“The Career Incentive Program of the DOST-Science Education Institute has helped me in the advancement of my career life. I was able to use modern and high tech Real-Time PCR (polymerase chain reaction) machine for nucleic acids amplification as well as advanced equipment for gel electrophoresis and newest model of the Gel Documentation System of Gel Imager for quality check of the amplified nucleic acids.”

Applications for S&T Specialist Eligibility evaluated under PD997.

In 2015, a total of 43 applications were received and evaluated for Civil Service Eligibility under Presidential Decree No. 997 (PD No. 997), a law that allows the issuance of Scientific and Technological (S&T) Specialist Eligibility to those whose expertise is gained through advanced education and sharpened by research and teaching experience to promote scientific research and invention towards the advancement of science. The S&T Specialist Eligibility is considered appropriate for personnel in the first and second level positions in the government whose courses are not covered by Bar, Board and other special laws.

Out of the total number of applications, 33 were endorsed by the DOST Secretary to the Civil Service Commission (CSC) Central Office and Regional Offices. The applicants were evaluated on the bases of their qualifications and the requirements of public service, in the preliminary and final evaluation by the Technical Working Group and Presidential Committee, respectively.

The DOST Secretary likewise endorsed the revisions on the PD No. 997 Implementing Rules and Regulations (IRR) to the Civil Service Commission for approval and implementation.

S&T SCHOLARSHIP PROGRAM POLICY CONFERENCES AND UPDATES

Reorientation meeting presents innovations and updates.

Sixty-three (63) Regional Technical Coordinators, Regional Scholarship Project Staff and DOST-SEI officials and staff attended a reorientation meeting in General Santos City, South Cotabato on December 2-3, 2015. Its aim was to update everyone on the S&T Scholarship Programs’ new policies and procedures, review the duties and responsibilities of the Scholarship Project Staff to be reflected in the

Individual Performance Commitment and Review (IPCR) Form, and set their targets for the effective and efficient delivery of services to various stakeholders.

Dr. Josette T. Biyo, in her welcome address, emphasized DOST-SEI’s commitment to implement innovative approaches in its S&T Scholarship Program geared towards the development of the country’s S&T human resource who can help the government in crafting and implementing innovative goods and services to uplift the socio-economic status of the Filipino people, specifically those in the marginalized sectors.

PARTICIPANTS FROM THE MINDANAO CLUSTER DELIBERATE ON SCHOLARSHIP ISSUES AND CONCERNS DURING THE WORKSHOP



Dr. Biyo also presented the strategic directions (2017-2027) of DOST-SEI, among which is to increase the number of S&T scholarship slots, i.e., from 3,500 to 6,000 for the Undergraduate Program; from 700 to 1,400 for Master’s Program and from 250 to 700 for the Doctoral Program. Such strategies are aimed at achieving the UNESCO benchmark, i.e., 380 R&D personnel per million population. DOST-SEI Consultant Prof. Fortunato T. de la Peña presented the consolidated regional statistical reports on S&T Scholarship Programs such as: availment, drop-out and graduation rates; reasons for undergraduate scholarship drop-out/disqualifications; problems commonly encountered by the Regional Scholarship Coordinators/

Staff in the implementation of the S&T Scholarship Programs; good practices in the implementation of S&T Scholarship Programs; recommendations for more efficient operations of the S&T Scholarship Programs; and strategic suggestions for DOST-SEI Scholarships in general.

Engr. Ramil T. Uy and Ms. Teresita Baluyos, Regional Technical Coordinators of DOST ROs VIII and X, respectively, presented their best practices in the implementation of scholarship programs in their respective regions. Engr. Uy imparted their strategies on how they attracted applicants and eventually enlisted scholars for all the municipalities of the Eastern Visayas Region. Ms. Baluyos, on the other hand, shared their approaches on empowering the scholars' organizations in Central Mindanao Region and utilizing their assistance in promoting and implementing the DOST-SEI's scholarship programs.

Other topics discussed included support for activities of scholars' organizations, evaluation of scholars' appeals and non-compliance cases, updates on the Scholarship Information System, and financial matters.

Roundtable discussion assesses priority S&T Courses.

On April 22, 2015, a Roundtable Discussion was conducted with the aim of reviewing and updating the list of priority S&T courses of the DOST-SEI Scholarship Programs in comparison with the current and projected manpower needs of the industry, the government and the academe. It also sought to align the DOST-SEI scholars' chosen fields of specialization with the DOST national research agenda.

Held at the Astoria Hotel in Pasig City, the activity was attended by 70 officials and representatives from government agencies, private industries, academe, professional organizations and DOST-SEI.

Launched during the program was the Human Resources in Science and Technology in the Philippines, a research conducted and published by the Research Unit-S&T Manpower Education Research and Promotions Division of DOST-SEI. The research provides estimates on the number



DR. JOSETTE T. BIYO, SEI DIRECTOR, EMPHASIZES THE SIGNIFICANCE OF HAVING AN UPDATED LIST OF PRIORITY S&T COURSES



THE RTD PARTICIPANTS HEADED BY DR. JOSETTE T. BIYO, SEI DIRECTOR (SEATED THIRD FROM THE RIGHT), DR. ROWENA CRISTINA L. GUEVARA, DOST UNDERSECRETARY FOR S&T SERVICES (SEATED FOURTH FROM THE RIGHT), DR. WILLIAM G. PADOLINA, FORMER DOST SECRETARY AND PROF. FORTUNATO T. DELA PENA, FORMER DOST UNDERSECRETARY (SEATED THIRD AND FOURTH FROM THE LEFT, RESPECTIVELY).

of human resource in science and technology in the country which can be used as empirical basis for policymakers in crafting legislations concerning improvement and maintenance of human capital in S&T necessary in knowledge creation and technological innovation.

The plenary talks that followed centered on these topics:

- *Status of Human Resources in Agriculture, Aquatic and Natural Resources (AANR) Sectors* by Dr. Melvin Carlos, Deputy Director, *Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD)*
- *Status of Health S&T Human Resources* by Ms. Carina Rebulanan, *Chief SRS, Philippine Council for Health Research and Development (PCHRD)*
- *Proposed S&T Courses for Industry, Energy and Emerging Technologies* by Engr. Ermie Bacarra, *Chief SRS, Philippine Council for Industry, Energy and Emerging Technology Research and Development (PCIEERD)*
- *Philippine Labor Market Information: Status of S&T Manpower of the Philippines* by Ms. Ruth Rodriguez, *Staff, Department of Labor and Employment (DOLE)*
- *Priority Science and Technology Courses: PCCI Perspective* by Mr. Antonio Sayo, *Co-Chairman, Philippine Chamber of Commerce and Industries (PCCI)*

After due deliberation, the following courses shall now be included in the priority S&T courses of the DOST-SEI S&T Undergraduate Scholarship Programs:

- BS Aeronautical Engineering
- BS Aerospace Engineering
- BS Agribusiness Management
- BS Agricultural Economics
- BS Applied Statistics
- BS Industrial Design
- BS Industrial Pharmacy
- BS Mathematics and Science Teaching
- BS Marine Biology
- BS Marine Science
- BS Mechatronics Engineering
- BS Medical Technology
- BS Meteorology
- BS Microbiology
- BS Nutrition
- BS Nutrition and Dietetics
- BS Pharmacy
- BS Pharmacy major in Clinical Pharmacy
- BS Packaging Engineering
- BS Petroleum Engineering
- BS Psychology
- BS Public Health
- Doctor of Dental Medicine
- Doctor of Veterinary Medicine

The new list of priority S&T courses was presented and approved by the National Technical and Selection Committee (NTSC) on S&T Scholarships and the Advisory Committee on S&T Scholarships (ACSTS). The latter recommended for

SEI to study and assess which among the listed courses will have a quota and premium in terms of stipend.

As off-shoot of the RTD, an Evaluation Team was created to assess the capability of the Palawan State University to offer the BS Petroleum Engineering and recommend actions based on the results/findings of the assessment. The team was headed by Prof. Fortunato T. de la Peña while the members were as follow: Dr. Benjamin Austria, Engr. Ermie Bacarra, Ms. Alicia L. Asuncion and Ms. Charilyn Joy Layus. The team conducted an ocular inspection of the facilities and equipment and interviewed some faculty members and students of the Department of Petroleum Engineering, PSU on November 26, 2015.

ERDT Visiting Professors and Researchers.

In 2015, the ERDT Visiting Professor program brought in 12 academic experts who gave lectures in the ERDT Consortium universities.

The ERDT Program provides for the invitation of internationally known professors to deliver lectures on key areas of engineering education, speak in symposia as well as help develop new curricula and strengthen existing ones. Direct beneficiaries for this component are ERDT scholars and, indirectly, their sending institutions. The ERDT consortium likewise benefits from this through R&D collaboration, technology transfer, and technical knowledge enhancement.

Similar to the Visiting Professor Program, another component of the ERDT HRD is the Visiting Researcher Program where researchers from reputable laboratories and research institutions are invited for a short or long term period to be part of the laboratory in a member consortium university. There are fewer visiting

researchers than professors because most prospective visiting researchers could not stay for a long time in the country.

From 2008-2015, there had been 87 professors and four researchers invited. Table 7 shows the number of invited professors and researchers from 2008 to 2015.

4th ERDT Congress tackles agricultural competitiveness.

Recognizing the pressing concerns of the agricultural sector and the possible contributions that the science and engineering community can provide, the ERDT with its two lead agricultural consortium universities Central Luzon State University and University of the Philippines Los Baños, successfully organized and conducted the 4th ERDT Congress on July 20, 2015 at the SMX Convention Center, Pasay City. With the theme “Agriculture and Science and Technology for Inclusive Growth”, the discussions centered on the various efforts done and collaborations needed to be forged to boost Philippine agricultural competitiveness.

Among the experts who gave plenary talks were Philippine Center for Postharvest Development and Mechanization Director Rex L. Bingabing who discussed “Farm Mechanization for Food Security,” Mie University Professor Emeritus Makoto Hoki who talked about “Agricultural Mechanization in the Asian Region,” and Phil-LiDAR 2 Project Program Leader Ariel C. Blanco who tackled “LiDAR and Geospatial Applications for Agricultural Land Resources Management.”

The 4th ERDT Congress, tagged as one of the official pre-events of the National Science and Technology Week 2015, culminated with the awarding of Best Posters and closing remarks delivered by ERDT UPLB Project Leader Dr. Arnold R. Elepaño.

Conference highlights Human Resource Development in Agriculture.

Hundreds of foreign and local participants attended the joint conferences of the 12th ERDT, the 11th Annual Technical Committee and Governing Council Meetings of the United Nations Economic and Social Commission – Center for Sustainable Agricultural Mechanization (UNESCAP CSAM), the 3rd Regional Forum on Sustainable Agricultural Mechanization in Asia and the Pacific, and the 3rd ASEAN Conference on Agricultural and Biosystems Engineering.

The joint conferences were held on December 9 to 11, 2015 at the Century Park Hotel, Manila, and carried the theme “Human Resource Development for Sustainable Agricultural Mechanization.”

The joint conferences aimed to highlight the role of human resource development as a strategic pillar in the attainment of a sustainable mechanization in Asia and the Pacific, establish linkages and exchange of information among the countries in Asia and the Pacific on agricultural mechanization human resource development, and facilitate cooperation actions and mechanisms among different stakeholders in the field of human resource development in agricultural mechanization within the region.

Aside from ERDT, the joint conferences were organized by the United National Economic and Social Commission for Asia and the Pacific-Center for Sustainable Agricultural Mechanization (UNESCAP-CSAM), Board of Agricultural Engineering of the Philippine Professional Regulation Commission, University of the Philippines – Los Baños College of Engineering and Agro-Industrial Technology, Philippine Council for Agriculture and Fisheries, and the Philippine Society of Agricultural Engineers.

WINNERS OF POSTERS COMPETITION POSE WITH PCAARRD ACTING EXEC. DIR. DR. REYNALDO V. EBORA AND ERDT PROGRAM LEADER DR. AURA C. MATIAS



ERDT PROGRAM LEADER DR. AURA C. MATIAS DELIVERS HER WELCOME REMARKS AT THE 12TH ERDT CONFERENCE CO-LOCATED WITH OTHER THREE EVENTS.

TABLE 7: Visiting Professors and Researchers from 2008 to 2015

	2008	2009	2010	2011	2012	2013	2014	2015	TOTAL
VISITING PROFESSORS	10	21	12	3	9	11	9	12	87
VISITING RESEARCHERS	1	2				1			4



DR. DELFIN JAY M. SABIDO IX, R&D EXECUTIVE OF IBM SYSTEMS, PRESENTS "ANALYTICS SOLUTIONS FOR PHILIPPINE CHALLENGES IN DISASTER PREPAREDNESS, AGRICULTURE AND HEALTHCARE" DURING A PLENARY SESSION

PARTICIPANTS OF THE 8TH AUN/SEED-NET RCEEE AND 11TH ERDT CONFERENCE POSE FOR A GROUP PHOTO



UP and DOST hold joint regional conference.

More than a hundred representatives from ASEAN University Network-Southeast Asia Engineering Education Development Network member institutions, ERDT scholars, and enthusiasts attended the joint conferences of the Electrical and Electronics Engineering Institute of the University of the Philippines Diliman, and the DOST-ERDT.

The joint conferences were the 8th AUN/SEED-Net Regional Conference on Electrical and Electronics Engineering (RCEEE) 2015, and the 11th ERDT Conference on Semiconductor Materials and Electronics, Information and Communications Technology and Energy.

Both conferences carried the theme "Envision, Enable, and Empower Smarter and Resilient Societies," and were held on November 16 and 17, 2015 at the Acacia Hotel in Filinvest City, Alabang, Metro Manila.

The AUN/SEED conference is an annual event that serves as a "platform to share the most updated technology and research of regional common issues, as well as publicize research works" of the AUN/SEED-net member institutions. It also allows opportunities for participants "to discuss future collaborations and activities related to each engineering field." The ERDT conference, meanwhile, is also a regular event for ERDT faculty and scholars to showcase their academic and research works.

The RCEEE 2015 and the 11th ERDT Conference featured five distinguished speakers. On the first day, Prof. Yukinori Kobayashi of Hokkaido University talked about "Robot Technologies for Smart Agriculture" while Prof. Tomoaki Ohtsuki of Keio University discussed "Self-Organization in Wireless Communications". The third speaker, Dr. Delfin Jay Sabido IX of IBM Systems, shared information on ongoing research and development activities in the local IT industry through his talk, "Analytics Solutions for Philippine Challenges in Disaster Preparedness, Agriculture and Healthcare."

On the second day, Prof. Costas Spanos of University California, Berkeley discussed about collaborative research activities that address large-scale societal needs through his talk "In The Interest of Society - Collaborative Research Models and Their Application Towards Developing Sustainable Infrastructure in the Tropics;" while Prof. Junichi Takada of Tokyo Institute of Technology shared the latest developments in "TV White Space for Rural Connectivity."

Apart from the keynote speakers, the said conferences were also graced by the Acting Executive Director and Chief Advisor of AUN/SEED-net, Dr. Ueda Tamon; Director of Science Education Institute of the Department of Science and Technology (DOST-SEI), Dr. Josette Biyo; and Dean of the UP College of Engineering and Program Leader of ERDT, Dr. Aura Matias; and Director of UP EEEL, Dr. John Richard Hizon, who delivered the opening messages on the first day.

Out of 89 paper presentations, the joint conferences gave out nine Best Paper Awards, which were handed out during the conference banquet.

As part of the conference program, the AUN/SEED delegates were brought to the Department of Science and Technology (DOST) compound in Bicutan, Taguig for a technical tour of the Electronics Product Development Center (EPDC) and the Advanced Device and Materials Testing Laboratory (ADMATEL).

2nd National Research Conference in Science and Mathematics Education highlights ASEAN integration.

A total of 204 scholars and faculty-members from 10 member-universities of the ASTHRDP-NCGSME attended the 2nd National Research Conference in Science and Mathematics Education held at the Iloilo Midtown Hotel, Iloilo City last October 22-23, 2015.

In her message, Dr. Josette T. Biyo said that the Institute is in full support of the Conference as it aimed to identify innovative and effective research strategies in the field of Science and Mathematics Education. She added that she was confident that the activity would contribute to the elevation of the quality of research and education in our country by producing more effective pedagogically-sound learning strategies appropriate for the current Philippine educational system.

Dr. Ester B. Ogena, President of the Philippine Normal University discussed the topic "Initiating Research Collaboration in ASEAN" while Dr. Catherine P. Vistro-Yu, Professor at the Mathematics Education Department, School of Science and Engineering, Ateneo de Manila University talked about "Harnessing the Filipino Educator's Potential for Research and Collaboration with ASEAN Scholars in Mathematics and Science Education".



PARTICIPANTS OF THE CONFERENCE POSE FOR A GROUP PICTURE

The event's theme: "Research and Innovation in Science and Mathematics Education: Moving Towards ASEAN Integration" highlighted the implementation of the ASEAN Economic Community and the importance of ensuring that all researches and innovations in Science and Mathematics Education should meet international standards in order to increase their marketability.

SCHOLARS DISCUSS THE RESULTS OF THEIR RESEARCHES THROUGH ORAL AND POSTER PRESENTATIONS



DR. BAS BOUMAN, DIRECTOR OF GLOBAL RICE SCIENCE PARTNERSHIP (GRISP) OF THE INTERNATIONAL RICE RESEARCH INSTITUTE (IRRI) ENCOURAGES THE SCHOLARS TO PURSUE FURTHER STUDIES AND ENGAGE THEMSELVES IN RESEARCHES THAT ARE ALIGNED IN ADDRESSING FOOD SECURITY

The conference also highlighted the research outputs of scholars, 10 of which were presented through posters and 21 through oral presentations.

4th ASTHRDP-NSC Scholars’ Conference underscores international linkages.

Some of the country’s brightest and most promising scholars and faculty members of the National Science Consortium (NSC) shared their research outputs through oral and poster presentations in the 4th National Department of Science and Technology-Science Education Institute (DOST-SEI) Accelerated Science and Technology Human Resource Development Program-National Science Consortium (ASTHRDP-NSC) Scholars’ Conference (DOST-SEI ASTHRDP-NSC). The event took place on May 7 and 8, 2015.

In attendance were 265 scholars, faculty members, scientists and other guests. This year’s theme “*Strengthening Linkages through Multi-disciplinary Collaboration*,” aimed to instill the value of collaboration and partnership engagement between and/or among the scholars and/or scientists and experts in two or more disciplines or bodies of specialized knowledge to advance fundamental understanding or to solve problems in which solutions are beyond the scope of a single discipline or area of research practice.



In his plenary presentation, Dr. Bas Bouman, Director of Global Rice Science Partnership (GRISP) of the International Rice Research Institute (IRRI), stressed that the Philippines needs to invest in its human capital who shall undertake high-calibre researches geared toward development of new technologies that will address problems on rice production and ensuring the country’s food sufficiency.

Dr. Rowena Cristina L. Guevara, Undersecretary for Scientific and Technological Services of the Department of Science and Technology (DOST), shared her experiences as a DOST scholar and urged the scholar-participants to take advantage of the opportunities to pursue further studies abroad, then return and stay to serve in the country, embrace excellence and excel in their fields of specialization, and impart their knowledge and expertise to the younger ones. She also mentioned that the DOST-SEI is in the process of crafting a Human Resource Development Plan: 2017-2027 in response to the need to accelerate the production of researchers, scientists and engineers (RSEs) in the country to be able to reach the UNESCO standard of having 380 RSEs per million population.

In the last plenary talk, Dr. Richard S. Abendan, Research and Industry Partnership Manager of USAID Science, Technology, Research and Innovation for Development (STRIDE), presented models on academe-industry linkages which the universities could leverage to further enhance the capabilities of their faculty members, and their universities as a whole. He also encouraged the students to be confident in “selling” their research outputs to the industries.

Dr. Fabian M. Dayrit, the Chairman of the ASTHRDP-National Science Consortium reported on the following: Annual Student Research Symposium; Internal Mobility Fund; Interdisciplinary Programs; Benchmarking with ASEAN and Improve on-time graduation rate. He also showed the graduation rate for each member-university and



encouraged them to accelerate the figure in order to contribute significantly to the goal of the ASTHRDP.

“*Meet the Balik-Scientists*” was a segment of the conference moderated by Dr. Jose V. Camacho Jr., Dean of the Graduate School and ASTHRDP-NSC and Project Leader at the University of the Philippines-Los Baños. The following scientists shared their experiences, their professions and their personal insights: Dr. Larry Ilag, Deputy Chief of Party of the RTI International team; Dr. Aaron Joseph Villaraza, Associate Professor at the Institute of Chemistry of the College of Science and concurrently the Deputy Director of the Office of the International Linkages, University of the Philippines-Diliman; Dr. Apollo Arquiza, Visiting Lecturer at Cornell University; Dr. Gonzalo Serafica, Consultant to various universities, R&D institutions, funding agencies and private companies on technology matters; Dr. Arnold Alguno, Professor and Chairman of the Physics Department, Mindanao State University-Iligan Institute for Technology; and Dr. Joseph Adrian Buensalido, Fellow in Infectious Diseases at the Wayne State University-Detroit Medical Center in Detroit, Michigan, USA.

The scientists concurred that while there is no problem in practicing their professions outside the Philippines,

the scholars should make sure to return to the country, share the knowledge and expertise they gain in their fields of specialization and be active partners in bringing economic growth especially in the countryside.

The conference also served as a venue for the leaders of the ASTHRDP benchmarking groups to report their impressions and learnings of their ASEAN benchmarking tours aimed at developing curricula/ course descriptions particularly in three areas: Climate Change and Disaster Preparedness, Material Science and Nanotechnology, and Natural Products and Drug Development. These would also be useful in strengthening linkages between universities/ research facilities, and forging collaborative researches in local and international levels, among others.

Six scholars were declared winners in the Best Poster Competition and awarded cash prizes and certificates: for Agriculture/ Fisheries/ Environmental Science - Jennet R. Mag-aso (UPLB) and Jayson P. Punay (UPD); for Biology/ Chemistry/ Health Science/ Food Science/ Natural Products –Ramon Arvin Noriel B. Santos (UST) and Maria Krisandra L. Mendoza (UST); for Computer Science/ Mathematics/ Statistics/ Material Science/ Physics – Jayson A. Lucilo (UPD) and Lorenzo P. Lopez Jr. (UPD).

THE WINNERS OF THE BEST POSTER COMPETITION POSE FOR A GROUP PICTURE WITH THE ASTHRDP-NSC OFFICIALS

ASTHRDP-NSC conducts benchmarking tour of Asian countries.

A benchmarking workshop took place from June 18 to 20, 2015 at The Legend Hotel in Puerto Princesa City, Palawan, with the objective of raising the competitiveness of the ASTHRDP-NSC in response to the changing research environment and to meet the S&T human resource requirements in the international level.

An ad-hoc technical working group was tasked to discuss strategies and plans to be undertaken by the Consortium in three priority areas, namely: Natural Products and Drug Development, Materials Science and Nanotechnology, and Climate Change and Disaster Preparedness.

Among the Initial projects and activities geared toward the realization of the objectives of the benchmarking activity included the collaboration with higher education institutions in several ASEAN countries.

The Natural Products and Drug Development Group was headed by Dr. Maribel Nonato, Program Coordinator and Vice Rector for Research and Innovation at the University of Santo Tomas. Other members include Dr. Fabian Dayrit of ADMU, Dr. Evangeline Amor of UPD, Dr. Lourdes Cardenas of UPLB, and Ms. Josefina Fernandez of SEI. The

group went to different universities and departments in Kuala Lumpur, Malaysia and Bangkok, Thailand on February 22-28, 2015.

The Materials Science and Nanotechnology Group was headed by Dr. Drexel Camacho, Program Coordinator and Director of Research and Advance Studies of the College of Science of De La Salle University. Other members include Dr. Erwin Enriquez of ADMU, Dr. Reynaldo Vequizo of MSU-IIT, Dr. Milagros Peralta of UPLB, Dr. Armando Somintac of UPD, Dr. Bernard John Tongol of UST and Ms. Charilyn Joy Layus of SEI. The Group visited the National Taiwan University and Academia Sinica on March 10, 2015 and the Korea Advanced Institute of Science and Technology on March 12, 2015.

The Climate Change and Disaster Preparedness group departed for Taipei, Taiwan; and Bangkok, Thailand on March 15, 2015 and returned in the country on March 22, 2015. The seven-man group was headed by Dr. Gay Jane Perez, Program Coordinator and Associate Professor at the Institute of Environmental Science and Meteorology of the University of the Philippines-Diliman. Other members include: Dr. Gemma Naresma of ADMU, Dr. Felino Lansigan of UPLB, Dr. Edgar Vallar of DLSU, Dr. Gay Defiesta of UPV, Dr. Josette T. Biyo of SEI and Ms. Ma. Daisy A. Demoni of



SEI. The group visited the National Center for Disaster Response, Taiwan; Central Weather Bureau, Taiwan; National Taiwan University, Taiwan; Asian Disaster Preparedness Center, Thailand; and Asian Institute of Technology, Thailand.

A Benchmarking Diagnostic and Writeshop was conducted on August 17-19, 2015 at the Sunrise Holiday Mansion, Alfonso, Cavite. The writeshop was attended by 61 participants composed of the NSC Project Leaders, the adhoc Benchmarking Technical Working Groups (TWGs) and other faculty members from the NSC member-universities, a Resource Person from the Commission on Higher Education, and 11 officials and staff of the Science Education Institute. The activity aimed to develop roadmaps covering the period 2016-2020.

The three-day activity included plenary sessions and series of planning writeshops for each of the identified areas. At the end of the writeshop, each TWG came up with the following information relevant to ASTHRDP-NSC identified benchmarking areas:

- Inventory of faculty members;
- Inventory of curricular programs/ courses;
- Inventory of researches and other programs in the universities;
- Inventory of facilities;
- Strengths, gaps and needs of the ASTHRDP;
- Curricular Program/Courses/ Lecturers;
- Strategies in enhancing the strengths/addressing the gaps and needs of the ASTHRDP
- Setting targets; and
- Roadmap in each ASTHRDP identified benchmarking area.



South East Asia has become by far the most dynamic region not just in terms of growth but also of using new technologies effectively to drive manufacturing and exports. To successfully integrate with the rest of ASEAN, the country needs a sense of community and a strong regional identity, one that would allow us to work in harmony with other member states as we move towards a globally competitive single market and production base and as we work to attract foreign investments.

Building Science and Technology Culture



Competitiveness is thus akin to attractiveness, and it hinges on the kind and quality of our programs particularly in S&T education. Our programs need to be responsive and relevant to the current national, regional and international environments. The affordability of our education and general linguistic advantage in using English should be rounded off with the creation of top caliber, multi-disciplinary and multi-cultural teaching and research personnel who will be highly regarded locally and internationally.

SPECIALIZED SCHOLARSHIP CAMPAIGNS

#Push4Science campaign gains more participants.

The campaign that aims to maket the DOST-SEI Undergraduate S&T Scholarship Programs to municipalities that had no examinees in the 2014 Junior Level Science Scholarship Program reached 18 out of 103 target municipalities or 17.4 percent in 2015. It served a total of

1,466 students and teachers from schools in 18 universities covering the municipalities of Dinalungan and Dilasag in Aurora; Sarangani in Davao Occidental; Lake Sebu in Koronadal; Kalamansig, Lebak, and Palimbang in Sultan Kudarat; Mandaon in Masbate; Palanan, Quirino, Luna and Dinapigue in Isabela; and Gabaldon, General M. Natividad, and Laur in Nueva Ecija.

The campaign followed the promote-inspire-persuade framework, engaging freshmen and sophomore college students enrolled in priority S&T courses to inspirational talks from ongoing scholars and scholar-graduates, interactive activities, and scholarship orientation. Application forms for the RA 10612 Program were also distributed to encourage students and school officials to go immediately through the application process.

For the other municipalities that were not directly reached, Scholarship Campaign Kits were provided to the PSTCs and the university officials for their respective scholarship caravans. Posters, brochures and other collaterals were also distributed in all DOST attached agencies in Metro Manila to promote the scholarship program.



INCOMING THIRD YEAR STUDENTS FROM NOTRE DAME OF MARBEL UNIVERSITY IN KORONADAL CITY, SOUTH COTABATO POSE FOR A GROUP PHOTO AFTER THE #PUSH4SCIENCE: MAGING DOST SCHOLAR KA! CAMPAIGN SESSION HELD IN MAY 2015. SIXTY-THREE (63) STUDENTS PARTICIPATED IN THE SCHOLARSHIP CARAVAN

ALTERNATIVE DELIVERY PROGRAMS AND INNOVATIONS

Science Explorer covers more ground.

Expanding its reach to more public elementary and secondary schools in the country, the Science Explorer conquered new grounds, bringing fun and interactive science learning to students straight from real-life scientists. In 2015, the Science Explorer served 2,731 students from 95 schools in various areas in Luzon.

The Science Explorer touched base with students from schools in northern, central and southern Luzon, as well as in the National Capital Region. (see table 8)

Strengthening its core of fun science activities, new modules developed included:

- Disaster Preparedness: Storm Chasing
- Food Science
- Fun Chemistry
- The Science of Storms
- Marine Geology
- Mangroves
- Materials Engineering
- River Geology
- Polymer Fun

- Weather Science
- Volcanoes
- Food Safety
- LED
- The Digestive System
- The Science of Light

TABLE 8: Students and Schools covered by the Science Explorer 2015		
VENUE	NO. OF STUDENTS	NO. OF SCHOOLS
Bahay Aruga, Manila	18	1
Baler, Aurora	568	4
Masbate and Naga City	799	37
San Fernando, Pampanga	356	22
Vigan	245	7
San Rafael, Bulacan	481	4
DOST-NCR	264	20
Total	2731	95



STUDENTS BLOW THROUGH THEIR ANEMOMETER AS THEY STUDY THE SCIENCE BEHIND WEATHER IN THE SCIENCE EXPLORER



STUDENTS FROM DIPACULAO NATIONAL HIGH SCHOOL POSE FOR A SHOT WITH THE SCIENCE EXPLORER.

Students enjoy new activities in Climate Science Youth Camp.

From April 12 to 21, 2015, the DOST-SEI implemented the Climate Science Youth Camp focusing on Oceanography and Meteorology in partnership with Marine Science Institute of the University of the Philippines – De La Salle University – Araneta and Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) – DOST.

The camp was held at the Camp J. Paul Resort of Masinloc, Zambales which featured new set of activities that cover major topics in Marine Science and Meteorology. The students and teachers from Region I, II, III and CAR teamed up with scientists to let the students get

the feel of actual research and fieldwork done by experts such as Observing the Automatic Weather Station (AWS), Tracking the Cyclones, Water Filtration, Water Quality Sampling, Plankton Microscopy, Basic Snorkeling and Sea Safety and Survival. Participants of this camp were also immersed with the community of San Salvador Island in Masinloc adapting the Participatory Action Research which is a technique for data collection and analysis.

The Climate Science Youth Camp bridges the basics of climate science, the technology of hazards assessment and reduction with the concepts of innovation and leadership among public high school students through the exploration of the dynamics between the atmosphere and ocean and the effects of climate change on the earth’s systems.



(LEFT) AN INSTRUCTOR FROM UP-MSI ENTHUSIASTICALLY TEACHES THE PARTICIPANTS OF THE RESILIENCE GAME

(BELOW) THE PARTICIPANTS DURING THE OPENING CEREMONY OF THE CLIMATE SCIENCE YOUTH CAMP WITH THE CAMP DIRECTOR (CENTER) DR. ALETTA YÑIGUEZ OF UP-MSI, (FROM LEFT CENTER) ENGR. GLENN BANAGUAS OF DLSU-ARANETA, MR. JOSEPH BASCONCILLO AND MS. RHONALYN MACALALAD OF DOST-PAGASA, MS. RUBY CRISTOBAL OF DOST-SEI (RIGHT CENTER)



A LOCAL OF SAN SALVADOR ISLAND IN MASINLOC, ZAMBALES GLADLY DISCUSSES THEIR OUTPUT FROM THE PARTICIPATORY ACTION RESEARCH ACTIVITY



PARTICIPANTS DOING THE CYCLONES TRACKING



STUDENTS GATHER AROUND TO OBSERVE THE SAMPLE CORAL FORMATION THAT IS BEING DISCUSSED BY A MARINE SCIENTIST



2015 CLIMATE SCIENCE YOUTH CAMP PARTICIPANTS BEATING THE HEAT WITH SMILES IN SAN SALVADOR ISLAND, MASINLOC, ZAMBALES

Philippine Space Science Education Program attains new heights

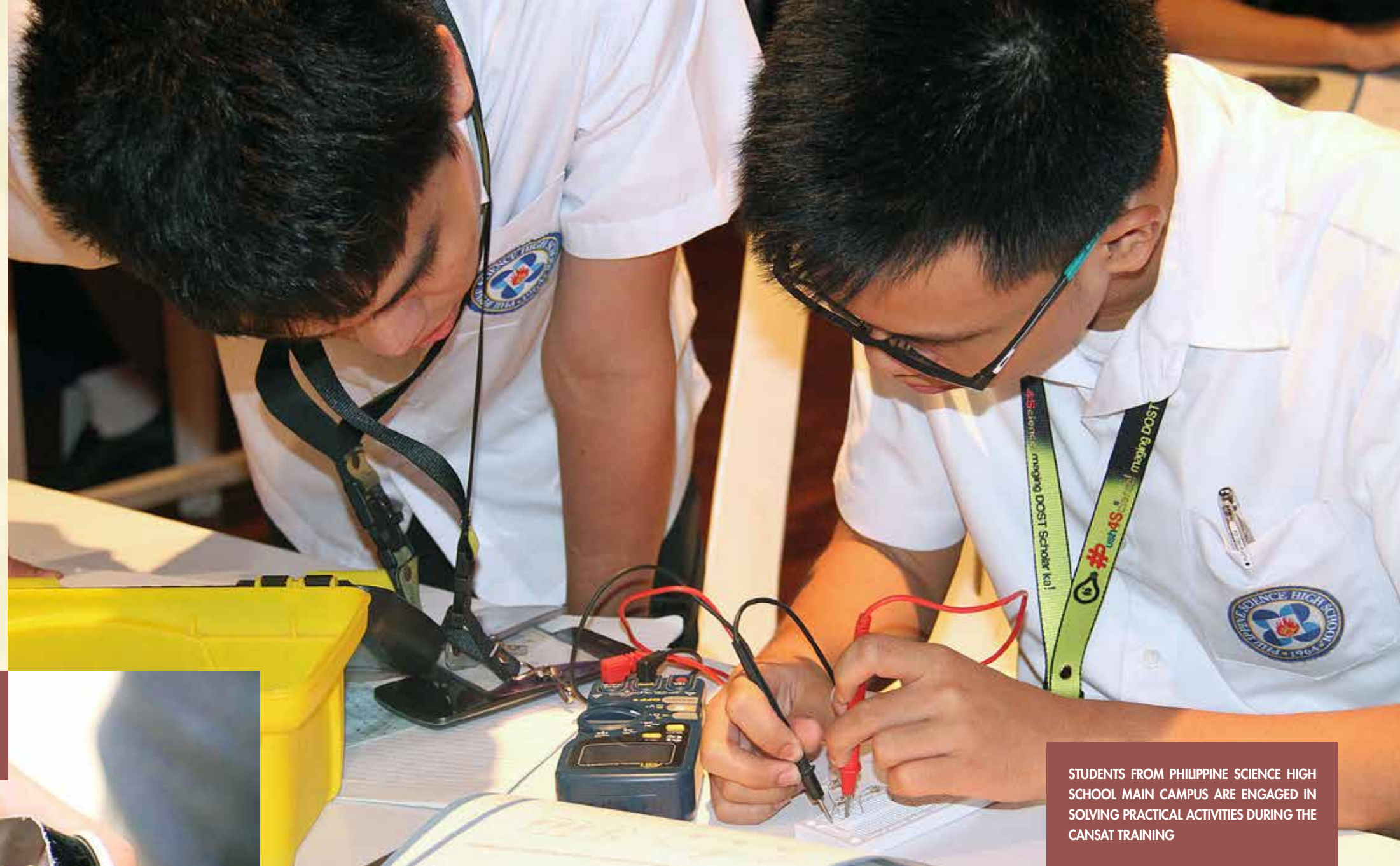
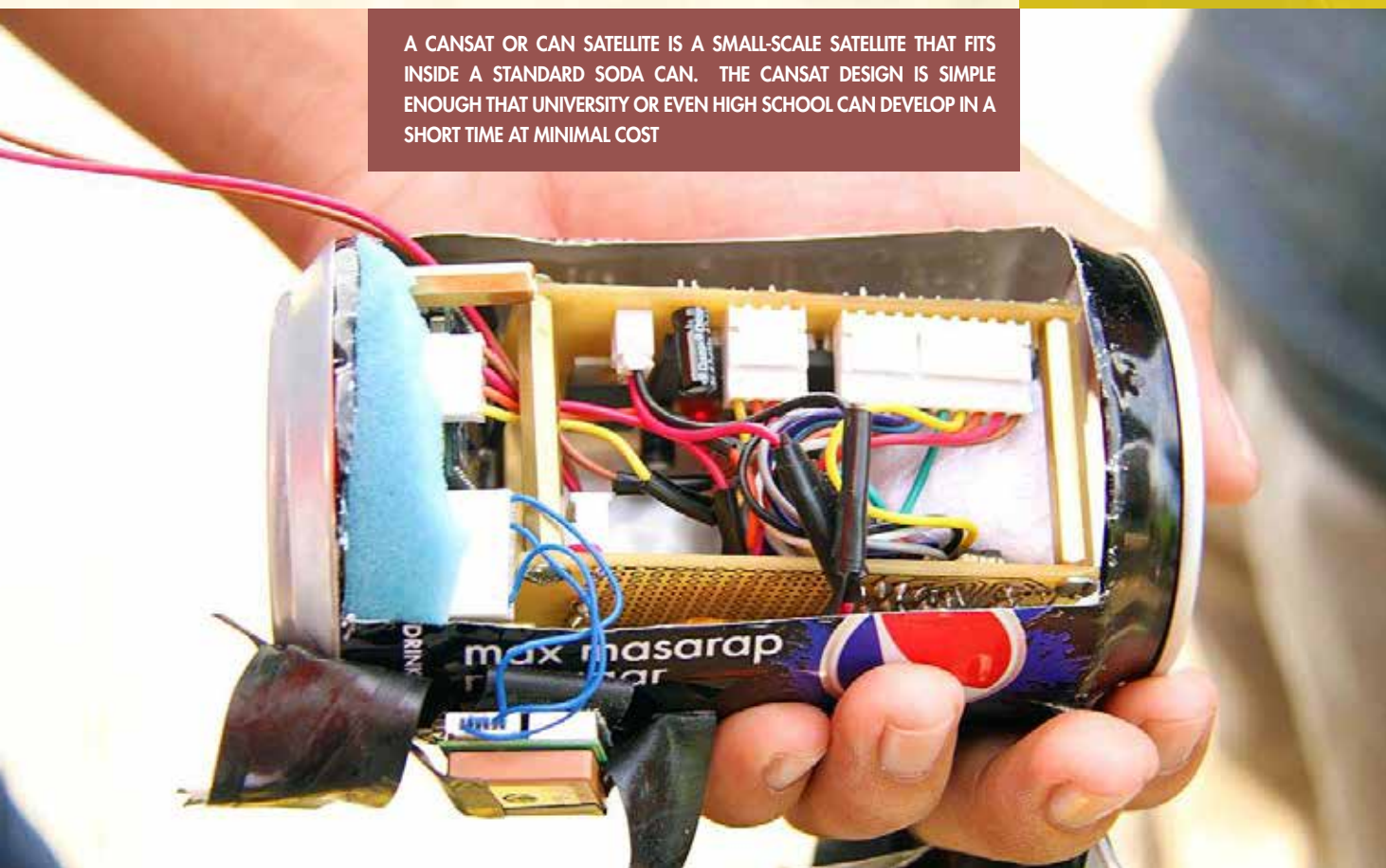
Promoting space education in the country, the Institute continues its catalytic role in mainstreaming advanced sciences such as astronomy and space science into the basic education system.

The 1st Can Satellite Competition

SEI pioneered another innovative science competition that allows schools to adopt various approaches in teaching space science into the classroom. From the previous Tagisang Robotics: Design. Build. Play. Competition team roster, 12 public and private high schools from NCR, Region III and IV-A have been selected to undergo basic can satellite development training on August 24-28, 2015 at the National Institute of Science and Mathematics Education for Development (NISMED), University of the Philippines, Diliman, Quezon City.

A total of 48 participants composed of three (3) students and a coach from each school attended the five-day training on basic electronics, programming and algorithm design, data logging and telemetry, sensor application, cansat integration

A CANSAT OR CAN SATELLITE IS A SMALL-SCALE SATELLITE THAT FITS INSIDE A STANDARD SODA CAN. THE CANSAT DESIGN IS SIMPLE ENOUGH THAT UNIVERSITY OR EVEN HIGH SCHOOL CAN DEVELOP IN A SHORT TIME AT MINIMAL COST



STUDENTS FROM PHILIPPINE SCIENCE HIGH SCHOOL MAIN CAMPUS ARE ENGAGED IN SOLVING PRACTICAL ACTIVITIES DURING THE CANSAT TRAINING

and basic concepts on meteorology. The series of lectures and discussions focused on practical activities intended to hone the skills of students in designing their own instrumentation system using sensors and relevant software.

A can satellite or Cansat is a small satellite that can fit inside an ordinary soda can. Cansats can be tasked to perform various functions such as imaging, in situ monitoring, telemetry or navigation. It is usually launched to altitudes of 100-4,000 meters using rockets, drones or tethered balloons and weighs around 350g. Upon release, cansats parachute back to Earth while performing its missions and are retrieved upon landing.

The competition seeks to provide an opportunity for Filipino high school students to experience the process of satellite development. The primary mission is to measure atmospheric data using temperature, pressure and GPS sensors and transmit these data to a ground receiving station.

2015 World Space Week Celebration

About 100 students from Manila, Rizal, Bulacan and Laguna gathered in the 3-day celebration at the University of the Philippines-Los Baños Campus to participate in the 2015 World Space Week, the largest space event on Earth, celebrated every October 4-10 annually, as declared by the United Nations.

The launch of the first ever set of cansats in Philippine history by Filipino high school students marked a milestone for the 2015 World Space Week (WSW) Celebration with the theme “Discovery.”

The cansats were launched using a drone and were deployed at an altitude of 100 meters. A cansat uses a parachute to descend while performing

A student from Marcelo H. Del Pilar High School in Bulacan places the cansat inside the carrier attached to a drone for deployment



the team’s pre-defined missions. The team with a more complex mission (e.g. telemetry, navigation) was given higher points than for simple missions (e.g. imaging, light and sound display). Upon retrieval, the teams were given time to perform data analysis which were presented to a panel of judges to determine the final score of the teams.

Grace Christian College was hailed as the champion of the 1st CanSat Competition and also earned the Best Systems Engineering Award receiving a total of Php 13,000 in cash prize. Placing second was the Philippine Science High School Main Campus while Makati Science High School placed third. The schools received Php 7,000 and Php 5,000 as cash prize respectively.

To add excitement to the students was the annual Water Rocket Competition where each team of high school students make a rocket from an ordinary PET bottle boosted by combining water and air pressure. Advancing to the international Water Rocket competition in the 22nd Asia Pacific Regional Space Agency Forum held in Bali, Indonesia was the team from Rizal National Science High School.

A Poster Making Contest was also conducted for elementary students in Los Baños, Laguna with the theme “Careers in Space” to entice them to become space enthusiast at an early age. The contest allows the students to express their ideas of space in art form, increasing their curiosity and level of awareness in space science and astronomy.



The team from Grace Christian College topped 11 other participating schools in the first ever CanSatellite Competition in the country. With them are the technical committee members and judges. (L-R: Engr. Mong Magpantay of UP-EEEI, Mr. Robert Badrina of DOST-PAGASA and Dr. Rogel Mari Sese, Focal Person of PSSEP, Ms. Ruby Cristobal, Chief SRS of STMERPD)

22nd Asia Pacific Regional Space Agency Forum - Water Rocket Event (APRSAF-WRE)

The Philippines participated in the 22nd Asia Pacific Regional Space Agency Forum (APRSAF) on November 28 to December 5, 2015 in Bali, Indonesia. The event was jointly organized by Japan Aerospace Exploration Agency (JAXA), Ministry of Education, Culture, Sports, Science and Technology of Japan (MEXT), Ministry of Research, Technology and Higher Education of Indonesia (RISTEK-DIKTI) and National Institute of Aeronautics and Space (LAPAN) with the theme “Sharing solutions through Synergy in Space”.

Three (3) high school students from Rizal National Science High School, namely: Josh Rael Jorquia, Ralph Joshua Macarasig and Kaye Charity Ignacio, represented the Philippines in the Water Rocket Event held on November 28 to 30, 2015. Joining them were PSSEP Focal Person, Dr. Rogel Mari Sese as coach and co-chair of the Space Education Working Group.

The team competed against 58 students from 14 countries in the Asia Pacific Region. Pathipan Sumran of Thailand took the first Place, Yuneth Chandir Wijenayake from Sri Lanka placed second and Shaiq Rehman Khan of Pakistan finished third overall.

The Philippines was announced as the Host Country of the 23rd APRSAF to be held in Manila in November 2016. Aims to build on the momentum sparked by the development of the first Filipino made microsatellite named “DIWATA-1.”



Aim proud and high. Three students from Rizal National Science High School showcased their water rocket in a bid to outlast 58 competitors in the 22nd APRSAF Water Rocket Event held in Bali, Indonesia.

Students aim the rocket to the target placed 80 meters away from the launcher



Top three posters will be sent to the 22nd APRSAF in Bali, Indonesia to compete against 40 entries from the Asia Pacific region

Filipino students display math mettle.

Philippine Mathematical Olympiad.
A total of 213 high school students took part in the 2015 Philippine Mathematical Olympiad (PMO), the oldest and most prestigious national mathematics competition among secondary students in the country. In the National Stage of the competition, which was held at the University of Santo Tomas, Manila on January 23, 2016, twenty (20) finalists competed.

The PMO is organized and implemented by the Mathematical Society of the Philippines (MSP) in cooperation with SEI-DOST. It aims to improve mathematics education in the country by awakening greater interest in mathematics among students and teachers.

Table 9 shows the top three (3) winners in the 18th PMO.

TABLE 9: Winners in the 18 th Philippine Mathematical Olympiad		
NAME	SCHOOL	AWARD/PRIZE RECEIVED
Farrell Eldrian Wu	MGC New Life Christian Academy	Champion/First Place P20, 000, Trophy, Medal, Cert
Kyle Patrick Dulay	Philippine Science High School – Main Campus	1st Runner up/2nd Place P15, 000, Trophy, Medal, Cert
Albert John Patupat	Holy Rosary College	2nd Runner up/3rd Place P10, 000, Trophy, Medal, Cert

THE TOP THREE (3) WINNERS (FROM LEFT TO RIGHT) WITH MATHEMATICAL SOCIETY OF THE PHILIPPINES OFFICERS, MS. RUBY R. CRISTOBAL OF DOST-SEI, AND MR. LUCERO ONG ASSISTANT VICE PRESIDENT OF SHARP CALCULATOR



2015 Math Olympiad Summer Camp (MOSC)

The 2015 MOSC was held at the Institute of Mathematics of the University of the Philippines Diliman from April 13 to May 22, 2015, inclusive of a one-week break towards the end of April. All twenty National Finalists of the Philippine Mathematical Olympiad were invited to take part in the training, although only fourteen confirmed their participation.

The trainers were headed by Jose Ernie Lope (UP Diliman), who would later be the country's Team Leader at the International Mathematical Olympiad. He was assisted by Louie John Vallejo (UPD), the country's Deputy Team Leader. The other trainers were: Richard Eden (Ateneo de Manila University), Joseph Damasco (UPD), Timothy Teng (ADMU) and Job Nable (ADMU).

Each training day consisted of a three-hour morning session and a three-hour afternoon session. The topics discussed were Geometry, Algebra, Number Theory and Combinatorics, which are the four official groupings of questions appearing at the IMO. Quizzes were given almost every session in order to quantitatively rank the participants. IMO-type mock quizzes were held twice, the first one before the one-week break in April and the second one towards the end of the training in May.

The six members of the Philippine Team were announced on May 22. They were:

- 1. Clyde Wesley S. Ang (Chiang Kai Shek College)
- 2. Kyle Patrick F. Dulay (Philippine Science High School Main)
- 3. Raymond Joseph C. Fadri (Makati Science High School)
- 4. Albert John L. Patupat (Holy Rosary College)
- 5. Adrian Reginald C. Sy (St. Jude Catholic School)
- 6. Farrell Eldrian S. Wu (MGC New Life Christian Academy)

Even after the team was formed, the training continued during the Saturdays of June, leading up to a mock-IMO scenario where the contestants were housed in a hostel and sat for 4.5-hour exams administered on two consecutive days.

International Mathematics Olympiad (IMO)

Finalists of the 2015 Philippine Mathematical Olympiad (PMO) joined the 56th International Mathematical Olympiad (IMO) held in Chiang Mai, Thailand on July 4-16, 2015. The Philippine team was composed of six (6) students, one Team Leader and one Deputy Team Leader.



TABLE 10: Awards earned by the Philippine Team to the 56 th IMO		
NAME	SCHOOL	AWARD
Adrian Reginald Sy	St. Jude Catholic School	Silver Medal
Clyde Wesley Ang	Chiang Kai Shek College	Silver Medal
Farrell Eldrian Wu	MGC New Life Christian Academy	Bronze Medal
Albert John Patupat	Holy Rosary College	Bronze Medal
Kyle Patrick F. Dulay	Philippine Science High School – Main Campus	Honourable Mention
Raymond Joseph Fadri	Makati Science High School	



ARRIVAL OF THE TEAM. DR. LOUIE JOHN VALLEJO (RIGHT UTMOST) WITH THE CONTESTANT'S (FROM LEFT TO RIGHT) ALBERT JOHN PATUPAT, FARRELL ELDRIAN WU, RAYMOND JOSEPH FADRI, ADRIAN REGINALD SY, KYLE PATRICK DULAY

THE OPENING CEREMONY WAS PRESIDED BY HER ROYAL HIGHNESS PRINCESS MAHA CHAKRI SIRINDHORN

THE PERFECT SCORERS WITH (FROM LEFT TO RIGHT) DR. SIMON CHUA, PRESIDENT OF MATHEMATICS TRAINERS GUILD (MTG) PHILIPPINES; MIKE CLAPPER, EXECUTIVE DIRECTOR, AUSTRALIAN MATHEMATICS TRUST; DR. ISIDRO AGUILAR, BUSINESS MANAGER, MTG PHILIPPINES



The International Mathematics Olympiad (IMO) is the largest, most prestigious and most difficult mathematics competition among the best secondary students in the world and is held annually in different countries.

The list of students and their respective awards are shown in Table 10.

Dr. Richard Eden and Dr. Louie John Vallejo both of UP-Institute of Mathematics led the Philippine Team as Team Leader and Deputy Team Leader, respectively. The Philippine participation to the 56th IMO is jointly organized by SEI-DOST, the Mathematical Society of the Philippines, the UP – Institute of Mathematics and Metrobank Foundation.

Australian Mathematics Olympiad (AMC)

Around 3,400 students from the Philippines were included among the 400,000 students from 40 countries that joined the Australian Mathematics Olympiad (AMC), the annual international correspondence-based mathematics competition administered by the non-profit Australian Mathematics Trust (AMT). Conducted by DOST-SEI in cooperation with the Mathematics Trainers’ Guild (MTG), DOST Regional Offices and Department of Education, AMC is considered as one of the largest competitions in the

world administered simultaneously in different countries worldwide.

In 2015, the AMC was held on August 6, while the Awarding Ceremonies was held on October 23, 2015 at the Manila Grand Opera Hotel, Sta. Cruz, Manila. More than 300 students, parents and guests attended the said event.

Eighty-three (83) Filipino students from different schools received Certificates of High Distinction.

BPI and DOST award best student projects.

The Bank of the Philippine Islands (BPI) and DOST hosted yet another successful *Best Project of the Year Awards* ceremony on March 12, 2015 at the Mind Museum Special Exhibition Hall, Bonifacio Global City.

The annual competition for Best Thesis by graduating students pursuing science courses in ten (10) accredited schools/universities aims to give recognition and incentives to students who excel in the fields of science, namely: Biology, Mathematics, Chemistry, Physics, Engineering and Computer Science.

In 2014, twenty-nine (29) entries were submitted by the following accredited schools for evaluation:

- 1. Ateneo de Davao University
- 2. Ateneo de Manila University
- 3. De La Salle University

- 4. Saint Louis University
- 5. Silliman University
- 6. University of the Philippines-Diliman
- 7. UP Los Banos
- 8. University of San Carlos
- 9. University of Santo Tomas
- 10. Xavier University

The preliminary judging of this project was conducted on January 27, 2015 wherein the Board of Judges selected the top six (6) finalists for the Applied and Basic Research Categories. The judges are composed of five (5) experts from DOST for the technical aspect and five (5) from BPI for the business aspect.

The top three (3) winners are shown in Table 12.



TABLE 12: 2015 BPI-DOST Best Project of the Year Awardees		
NAME AND UNIVERSITY	PROJECT TITLE	AWARDS/PRIZES
Christian John Capirig BS Biology Ateneo de Davao University	"In Vitro Evaluation of Selected Bacteria against <i>Fusarium oxysporum</i> f. sp. <i>Cubense</i> Tropical Race 4"	1st Place P 50,000.00 Trophy ** Graduate Scholarship Grant (SEI-DOST)
Raiza Elmira Imperial BS Chemistry UP Diliman	"One-step Fabrication of Superhydrophobic/Superoleophilic Electrodeposited Polythiophene for Oil and Water Separation"	2nd Place P 30,000.00 Trophy
Alron Jan Lam BS Computer Science with Specialization in Software Technology De la Salle University	"Breadcrumb: An Indoor Simultaneous Localization and Mapping System for Mobile Devices"	3rd Place P 10,000.00 Trophy

**subject to the approval of the Committee

TABLE 11: The 2015 Australian Mathematical Olympiad Awardees		
PRIZE	STUDENTS	SCHOOL
Perfect Score Peter O'Halloran Certificate	Andres Rico Gonzales	Colegio de San Juan de Letran – Manila
Perfect Score	Kyle Patrick Dulay	Philippine Science High School – Main
	Vince Jan Torres	Sta. Rosa Science and Technology High School
	Farrel Eldrian Wu	MGC New Life Christian Academy
Prize Awards	Nicholas Marcus Lau	St. Jude Catholic School
	Kei Hang Derek Chan	
	Alexandra Gochian	
	Raphael Dylan Dalida	St. Mary's Academy – Pasay
	Erin Christen Noceda	Grace Christian College
	Filbert Ephraim Wu	MGC New Life Christian Academy
	Annika Angela Mei Tamayo	Ateneo de Iloilo – SMCS
	Frederick Ivan Tan	Xavier School
	Bryce Ainsley Sanchez	Grace Christian College
	Sean Ty	Zamboanga Chong Hua High School
	Clyde Wesley Ang	Chiang Kai Shek College

2015 BPI-DOST PROJECT OF THE YEAR AWARDEES, CHRISTIAN JOHN CAPIRIG FROM ATENEO DE DAVAO UNIVERSITY, GRAND WINNER (MIDDLE); RAIZA ELMIRA IMPERIAL FROM UNIVERSITY OF THE PHILIPPINE DILIMAN, 1ST RUNNER UP (LEFT); AND ALRON JAN LAM FROM DE LA SALLE UNIVERSITY, SECOND RUNNER UP (RIGHT)

More students win YES Awards.
In 2015, a total of 609 students from 210 schools, who won in international science and mathematics competitions were awarded with YES medals during the YES Awarding ceremonies held at PHIVOLCS Auditorium, PHIVOLCS Bldg, C.P. Garcia Ave., UP Diliman, Quezon City on February 4, 2016. There are 316 awardees from NCR and 293 from the regions.

The number of awardees represents a 30% increase from 2014, highlighting the continuing exemplary achievement of Filipino youth in the fields of science and mathematics. Awardees receive medals of distinction awarded by the Secretary of Science and Technology or the DOST Regional Director toward the end of each year or early months of the following year.

The YES Medal signifies DOST’s high regard for excellence and competitiveness through the distinguished achievements of young Filipinos in international science and mathematics competitions.

THE 2015 YES AWARDEES BRIMMING WITH PRIDE AND CONFIDENCE TOGETHER WITH DOST SECRETARY MARIO G. MONTEJO AND UNDERSECRETARY FOR S&T SERVICES DR. ROWENA C. GUEVARA



INFORMATION
DISSEMINATION AND
COMMUNICATION

Strategic communication plan
helps promote S&T programs.

In 2015, SEI implemented an arsenal of communication strategies to ignite the interest of students and the general public on issues involving science education in a fun, interesting, and engaging manner.

Through mass media, the Institute sent out 23 news articles, generating 88 media placements. In the realm of social media, the SEI official Facebook account has garnered 13,663 followers, rising from 10,410 in 2014.

Expanding its reach to the regions, SEI participated in one national exhibition and four regional exhibitions. It participated in the 2015 National Science and Technology Week where 606

participants were engaged during the five-day event. The exhibit featured 20 female DOST scholars and scientists who are exemplary in their fields. Entitled “She for We,” the exhibit also had fora where the students interacted with leading scientists and engineers.

SEI also conducted an activity for the youth entitled: “Clash of Class: The Ultimate Battle of Science Smarts”. This is a two-day event where students from public elementary and secondary schools teamed up with DOST scholars in a contest that tested their skills and wit in a series of science-based fun competitions. The event was attended by 232 students, teachers, and DOST scholars.

Reaching out to the peripherals, SEI participated in regional exhibitions shown in Table 13.

SEI participated as well in the Science Film Festival, an annual exhibition of science films for the youth shown in the entire world. All DOST regional offices and campuses of the Philippine Science High School System showed the 43 science films provided by SEI. A total of 21, 444 students viewed the films nationwide in the different screening venues arranged by SEI and its partner institutions.

THE SEI OFFICIAL FACEBOOK ACCOUNT

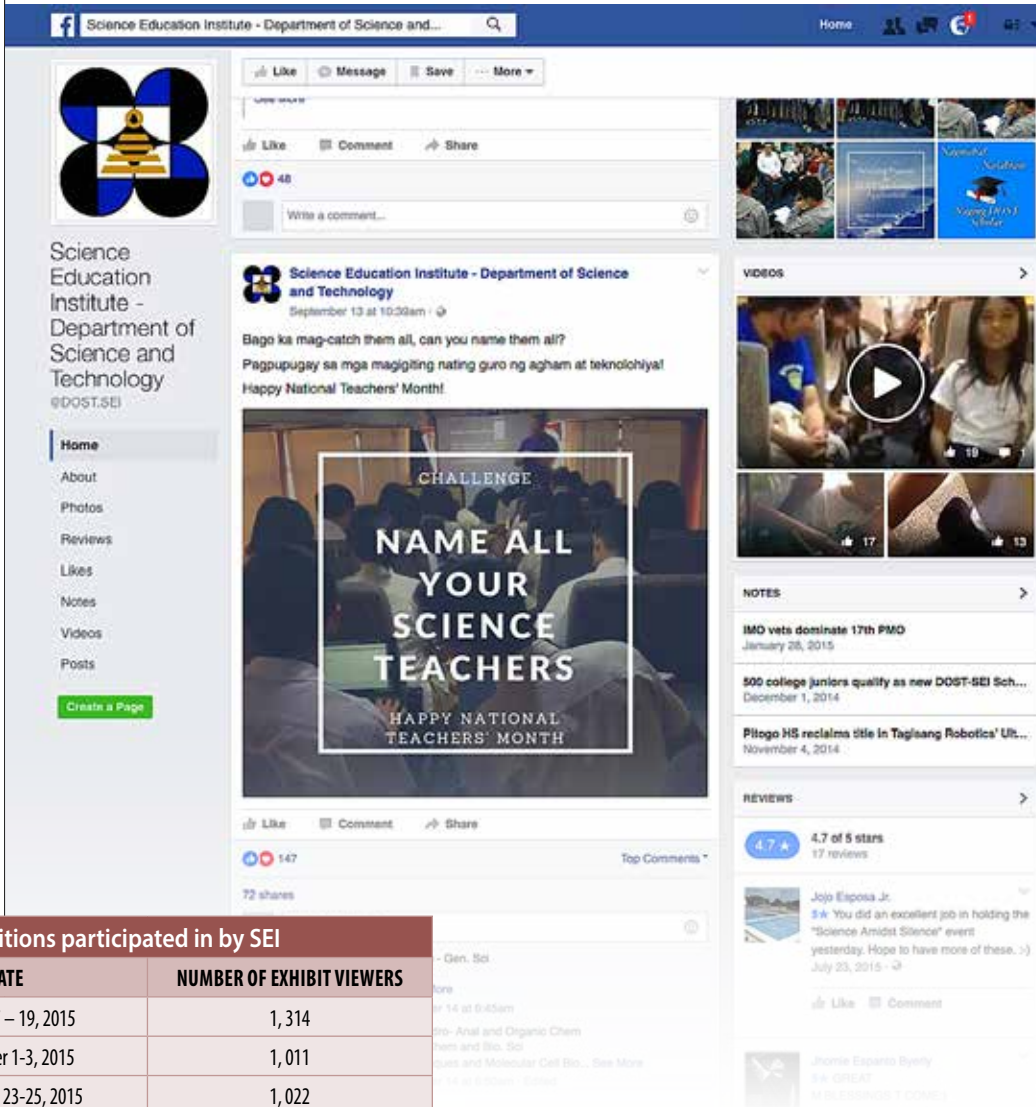


TABLE 13: Regional Exhibitions participated in by SEI

VENUE	DATE	NUMBER OF EXHIBIT VIEWERS
Puerto Princesa	August 17 – 19, 2015	1,314
Vigan, Ilocos Sur	September 1-3, 2015	1,011
Ormoc City, Leyte	September 23-25, 2015	1,022
Zamboanga City	December 1-7, 2015	1,993
TOTAL		5,340

Globalization, ubiquitous technologies, accelerated pace of innovation and a host of other developments form a vibrant environment that increasingly compels those in the teaching profession to stay on top of the learning curve and keep up with the requirements of their own students. Such a setting with its ever shifting demands can be both challenging and intimidating to education service providers.

Along with all the cooperating institutions in the private and public sectors, the Science Education Institute (SEI) recognizes the importance of enhancing the role of teacher education institutions.

Strengthening Capabilities in Science and Technology Education

More than just focusing on classroom technology, resources are channeled to projects that facilitate enhanced teacher education and teacher professional development. Helping them meet more stringent licensure requirements, enhance their professional development, and comprehend increasingly rigorous course content are valuable approaches that will deliver better and more equitable education at the primary and secondary levels, and produce longer-term and sustainable impact on the education of our children.

Table 14: Teaching Mathematics through Problem Solving					
Region	Training Venue	Training Dates	Participants		Total
			Male	Female	
NCR	PNU College of Education Taft, Manila	February 11-13, 2015	7	41	48
IX	Division Teacher Center Pagadian City	April 27-29, 2015	11	39	50

Table 16: Inquiry-based Teaching for Science in Grade 7 and 8 (REGIONAL TRAININGS)					
Region	Training Venue	Training Dates	No. of Participants		Total
			Male	Female	
I	Mariano Marcos State University	July 29-31, 2015	12	38	50
X	Mindanao State University -Iligan Institute of Technology	August 12-14, 2015	9	41	50
V	Bicol University	August 18-20, 2015	12	38	50
VI	West Visayas State University	August 26-28, 2015	16	34	50
III	Central Luzon State University	September 16-18, 2015	15	35	50
IX	Teacher's Center, Department of Education, Pagadian City	October 13-15, 2015	18	42	60

STRENGTHENING CAPABILITIES IN SCIENCE & TECHNOLOGY EDUCATION

Two-phased training sessions expand teacher competencies.

In 2015, a total of 428 teachers benefited from these training programs implemented in partnership with the following universities: Mariano Marcos State University (MMSU), Central Luzon State University (CLSU), Philippine Normal University (PNU), Bicol University (BU), West Visayas State University (WVSU) and the Mindanao State University-Iligan Institute of Technology (MSU-IIT). The Department of Education Regional Offices were likewise involved in the implementation of these training programs.

The goal of the program is to develop the capacity of teachers in innovative teaching approaches and utilizing resources using STEM concepts that are aligned to the K to 12 curriculum.

Table 15: Inquiry-based Teaching for Science in Grade 7 and 8 (TRAINORS-TRAINING AT PUNTA DE FABIAN, BARAS RIZAL ON MAY 5-8, 2015)				
Region	Institution/University	No. of Participants		Total
		Male	Female	
I	Mariano Marcos State University DepEd Region 1	1	3	4
III	Central Luzon State University Dep Ed Region 3	0	4	4
V	Bicol University Dep Ed Region 5	0	4	4
VI	West Visayas State University Dep Ed Region VI	2	2	4
XI	Mindanao State University Dep Ed Region X	2	2	4
				20

The trainings were done in two phases, beginning with a trainors-training, where faculty members of the universities were trained on STEM concepts, and subsequently, regional trainings where the trained faculty members cascaded these concepts to in-service teachers of their respective regions.

Table 14-16 show the details of the training programs conducted for university faculty and teachers.

Both Trainors-Training and Regional Trainings in math and science consisted of input sessions on K-12 curriculum, workshops/lecture on Development and Assessment of High-Order Thinking Skills; development of lessons and teaching demonstration. Action plans for the conduct of the same training-workshop in respective schools were done.

Science teachers undergo gender-responsive pedagogy training.

With the aim of establishing a gender-responsive environment in the teaching and learning of secondary science, the project “Gender-responsive Pedagogy for Secondary Science” was implemented.

It was composed of three phases:
1. development of data gathering instrument and gathering of baseline data, in which 74 science teachers participated

2. development of the training design and conduct of training in gender-responsive pedagogy, in which 71 science teachers participated
3. evaluation to determine integration of gender concerns in teaching, in which 56 science teachers participated.

The participants came from the following schools in the DepEd Division of Calamba City.

- Calamba Bayside National High School
- Calamba National High School
- Calamba National High School-Annex
- Calamba City Science High School
- Camp Vicente Lim National High School
- Canlubang National High School
- Castor Alviar National High School
- E. Barretto Sr. National High School
- Kapayapaan national High School

PARTICIPANTS ENGAGED ON THE USE OF VARIOUS MATERIALS IN TEACHING MATHEMATICS THROUGH PROBLEM SOLVING





SCIENCE TEACHERS FROM DEPED DIVISION OF CALAMBA DISCUSS AND REPORT THE CHALLENGES ON HOW TO MAKE THEIR TEACHING STRATEGY AND CLASSROOM MANAGEMENT BECOME GENDER-RESPONSIVE



- Lecheria National High School
- Looc National High School
- Majada National High School
- Makiling National High School
- Palo Alto National High School
- Punta National High School

In Phase I of the project, staff conducted a survey to gather information on the current status of science teachers on gender sensitivity and awareness in teaching the subject. This was held in June 26, 2015 at the Dr. Jose Rizal Memorial School (JRMS) Calamba City. The result of the baseline study revealed that majority of the teachers were aware on the various aspects of gender responsive pedagogy, namely: (1) Teaching Methodology; (2) Lesson Planning; (3) Teaching and Learning Materials; (4) Language; and (5) Classroom Set-up.

Phase 2 of the project was a 3-day training on gender responsive teaching pedagogy. It consisted of lectures and discussion on gender sensitivity and gender responsiveness, lesson development and implementation, preparation of teaching and learning materials, and demonstrations of classroom arrangements. This was also held at JRMS, Calamba City on July 22-24, 2015.

Phase 3 or evaluation part, involved the application of the concepts on



PARTICIPANTS UNDERGO GENDER-RESPONSIVE PEDAGOGY TRAINING

gender-responsive pedagogy in their science class, particularly in the aspects of lesson planning, selection of group leaders, recitation, group reporting, seating arrangement, preparation of visual aids and test construction. There were challenges reported in their implementation such as the unequal number of boys and girls, and consistency in performing the tasks stated.

Science and Mathematics teachers learn disaster risk reduction and management.

A three-day training for science and mathematics teachers to enhance their knowledge on and responses to natural disasters was held as part of DOST-SEI's continuing commitment to Republic Act No. 10121 or the DRRM Act of 2010. Held in Baler, Aurora from April 15 to 17 and in Virac, Catanduanes from April 21 to 23, 2015, the workshops drew the participation of 99 science and mathematics teachers.

The topics discussed in the training included: Philippine disaster risk profile, legal framework of DRRM, climate

change, various natural disasters and appropriate responses, DRR measures, psychosocial issues, and first-aid. The participants were also exposed to activities like tracking typhoons and conducting earthquake drills in their schools, and visited the PAGASA weather stations in their respective provinces to get acquainted with various forecasting and monitoring equipment.

Experts from PHIVOLCS, PAGASA, Office of Civil Defense, DENR- Mines and Geosciences Bureau, Department of Health, and Philippine Red Cross served as resource persons.

The output of the training was a DRRM plan for their schools.



HAZARD MAP READING



TECHNICAL VISIT TO PAGASA WEATHER STATION IN BALER

Project Science Teacher Academy for the Regions (STAR) conducts goal-setting workshop

On November 24-26, 2015, thirty-four (34) science and mathematics trainers participated in a three-day workshop to plan targets for STAR trainings up to 2019 and to benchmark with similar initiatives abroad.

The workshop, held at the Subic Travellers Hotel in SBMA, Olongapo City, gathered STAR trainors from the six (6) partner universities, namely: Mariano Marcos State University (MMSU), Central Luzon State University (CLSU), Philippine Normal University (PNU), Bicol University (BU), West Visayas State University (WVSU) and Mindanao State University-Iligan Institute of Technology (MSU-IIT). Also included were DepEd math and science supervisors from these regions.

The six partner universities presented their initiatives on STEM education while DepEd education program supervisors reported the sustainability of the STAR training in their respective regions.

Dr. Marlene B. Ferido from UP NISMED presented the current state of science and mathematics education in the Philippines during the plenary session while Dr. Sheryl Lyn C. Monterola of UP College of Education served as consultant and facilitator of the entire workshop.



THE THREE-DAY WORKSHOP INVOLVED PARTICIPANTS IN AN INTENSIVE SERIES OF DISCUSSIONS, GROUP ACTIVITIES AND LECTURES TO LAY DOWN STAR TRAINING TARGETS UP TO 2019 AND BENCHMARK WITH SIMILAR INITIATIVES ABROAD

SCIENCE AND MATHEMATICS TRAINERS POSE DURING THE THREE-DAY STAR TRAINING WORKSHOP





Anyone who stops learning is old, whether at twenty or eighty. Anyone who keeps learning stays young.

– Henry Ford



SENIOR CITIZENS OF MARIKINA CITY TAKE PART IN VARIOUS SCIENTIFIC ACTIVITIES DURING THE TWO-DAY SCIENCE CAMP FOR LOLO AND LOLA.

Senior citizens take part in Science Camp.

Senior citizens of Marikina City attended a two-day activity dubbed as *Science Camp for Lolo and Lola*, a workshop that exposed them to scientific concepts. Held in cooperation with the city's Office of Senior Citizens Affairs, the project was in support of Republic Act No. 9257, otherwise known as the "Expanded Senior Citizens Act of 2003".

The senior citizens prepared activities on the topics "Inheritance of Traits" for Biology, "Acids and Bases" for Chemistry, "Lolo and Lola Went to Market" for Nutrition, "Grandpa and Granma 2.0" for ICT and "Star gazing" for Earth and Space.

Science teachers learn how to teach hearing impaired students.

A training-workshop specifically designed to help teachers be more creative and effective in teaching science to their hearing impaired students in a mainstream classroom was held in on July 22, 2015 at the PHIVOLCS Auditorium, Diliman, Quezon City. Twenty-seven elementary and 22 secondary teachers participated in the workshop.

SEI Director Dr. Josette Biyo stressed the importance of how a simple classroom teacher can make a big impact in the lives of students, and reiterated the duty of teachers to make learning enjoyable and worthwhile.

Remberto Esposa Jr., Director of Manila Christian Computer Institute for the Deaf shared his story of his fascination with sign language and how he helped the hearing impaired.

Dr. Marie Grace A. Gomez, Director of Diliman Learning Resource Center, gave an overview of the present situation of deaf students in the Philippines. Dr. Maria Pilar O. Capalongan, Elementary Science



SECONDARY DEAF STUDENTS FINDING WORDS DESCRIBED BY THE TEACHER FROM BLOCKS

Supervisor, DepEd Quezon City, identified common problems encountered in teaching science to deaf students and showed how teachers can address those problems/issues in their daily classroom situation. Dr. Juanita V. Tolentino, Education Supervisor II, DepEd NCR, shared various techniques/methods in teaching science to deaf pupils effectively.

Ruperto D. Cabrera, Paul Bryan A. Gaveria, Catherine Joy F. Villareal from the Philippine National Association of Sign Language Interpreters, Inc. graced the occasion and taught the teacher-participants, students, guests and staff how to interpret a number of science concepts via sign language.

After all the inspirational messages and informative talks, teachers Sonia Lodado and Cherry Tamayao of Batino Elementary School and Marilene Villanueva and Rolando Barcelon of Quirino High School gave lessons that demonstrated the ideal way of teaching deaf students and encouraging them to take part in conducting experiments. These demonstrations made the teachers realize the need to study sign language and the need for SPED teachers to help deaf students succeed in the mainstream learning environment.

DR. JOSETTE BIYO GAVE HER MESSAGE AS MR. REMBERTO ESPOSA JR. TRANSLATES VIA SIGN LANGUAGE.



Science education set to benefit indigenous pupils.

To address inclusive development in education, DOST-SEI launched this project to enable marginalized groups of people to participate in national development.

The project particularly caters to elementary teachers from schools with predominantly indigenous learners. It aims to equip these teachers not only with capabilities to teach science concepts to IP (Indigenous Peoples) learners but also with ability to create local suitable materials and ideas that are culture-based and familiar to them.

The project is composed of the following stages/phases:

- 1. Orientation and ocular visits to schools in IP communities. The Institute’s project personnel and the IP focal persons from DepEd Region 3 and the Divisions of Tarlac and Pampanga visited the beneficiary schools in these provinces on July 28 and 29, 2015, respectively, to seek consent from the IP Elders and their communities to implement these initiatives and orient them on the project being proposed.
- 2. Focus Group Discussion (FGD). Discussions were held with the IP Elders and their communities about their knowledge systems and practices, and learning systems. The discussions focused on the

aspects that can be appropriately integrated in the science subject. The perspective of the concerned communities regarding their practice of the scientific processes was also discussed. Their inputs were documented and used by the teachers as basis in the development of indigenized lesson plans. The FGD in Pampanga was held on September 21-22, 2015 while that in Tarlac was held on September 23-24, 2015.

- 3. Designing the training-workshop for teachers on the indigenization of science lessons. To form the design for the training-workshop for teachers on the indigenization of science lessons, the Institute and DepEd IPsEO conducted a workshop on October 5-6, 2015 at St. Scholastica’s Convent in Baguio City. A consultant from UP Baguio was invited to help the group develop the training design.
- 4. Training-workshop on the indigenization of science lesson (plans) for IP education. A training-workshop was conducted on November 23-27, 2015 in Pampanga to develop teaching materials in the form of indigenized lesson plans in science for Grade 3, and in any subject for Kinder and Grades 1-2 in which science can be incorporated or integrated. Experts were invited to guide teachers in the process. The topics in the lesson plans were identified in the context

of the IPs’ indigenous knowledge and learning systems. The teachers selected topic/s from each grading period/quarter. The output of the training-workshop were eight lessons for Grade 3 (two lessons per quarter/grading period), and six lessons for Kinder and Grades 1-2 (two lessons per Grade level).

Project HOTS develops inquiry-based science lesson plan.

This professional development program was conducted for the benefit of 91 teachers of 29 elementary schools in the DepEd Division of Taguig City and Pateros.

The project consisted of two phases. Phase I was a 3-day, 21-hour seminar-workshop on developing inquiry-based activities and assessment tasks for targeted science lesson. The training was conducted from May 18 to 29, 2015 in three batches. The objective of the seminar-workshop was to collaboratively develop science lessons incorporating an inquiry-based activity and their diagnostic, formative, and summative forms of assessment.

Phase II was a school-based teacher-led follow-through. Schools were selected based on the following criteria: with large number of enrollees, implementing teachers preferably with minor or major in science, technology equipment like computers and LCD projectors, and

ability to form a Lesson Study Group.

Follow through activities took place from August to October, 2015 in the following elementary schools:

- C.P. Sta. Teresa Elementary School
- Bagong Tanyag Elementary School (Main)
- Enlisted Men’s Signal Village Elementary School
- Daanghari Elementary School
- Silangan Elementary School
- Kapt. Eddie Reyes Memorial Elementary School
- Tipas Elementary School
- Maharlika Elementary School
- Taguig Integrated School
- Pateros Elementary School



PARTICIPANTS OF THE WORKSHOP ON THE INDIGENIZATION OF LESSON PLANS FOR KINDER AND GRADES 1-3 ON 22-27 NOVEMBER 2015 AT OTEL PAMPANGA, SAN FERNANDO, PAMPANGA



TEACHER TRAINERS CONDUCTED HANDS-ON ACTIVITY DURING THE MAY 2015 TRAINING AT SEI



TWO IP ELDERS (CENTER) DEMONSTRATE THEIR WAY OF DELIVERING A BABY DURING THE FOCUS GROUP DISCUSSION WITH THE DEPED IP FOCAL PERSONS, IP ELDERS, COMMUNITY MEMBERS, AND TEACHERS OF SAN MARTIN ES, BAMBAN, TARLAC ON 23-24 SEPTEMBER 2015.



PUPILS OF C.P. STA. TERESA ELEMENTARY SCHOOL PARTICIPATED IN INDIVIDUAL ACTIVITIES SUPERVISED BY MS. ARMIE O ARAO, TEACHER IMPLEMENTER



WINNER OF THE MOST PROMISING SCHOOL IMPLEMENTER OF THE PROJECT WAS THE TAGUIG INTEGRATED SCHOOL IN THE PICTURE REPRESENTED BY MS. JOCELYN B. VILLANUEVA, ANNA KATHERINE L. VIERNES AND GLORIA P. RAYOS WITH SEI DIRECTOR JOSETTE T. BIYO, SEI DEPUTY DIRECTOR MARIA TERESA B. DE GUZMAN, DR. BENJAMIN D. SAMSON, OIC OF THE OFFICE OF THE SCHOOLS SUPERINTENDENT AND DR. LETICIA E. ANDOR, EDUCATION PROGRAM SUPERVISOR OF THE SCHOOLS DIVISION OF DEPED TAGUIG CITY-PATEROS

Lessons developed during the summer training were implemented in the 10 schools using the Lesson Study Cycle (LSC). This process entailed the creation of a Lesson Study Group per school to facilitate the follow through activities leading to the lesson implementation. The first teacher implementer conducted the lesson to a Grade 3 class. The lesson implementation was observed by other teachers, consultants from University of the Philippines- National Institute for Science and Mathematics Education Development (UP-NISMED), the Education Program Supervisor of the Division and SEI staff.

Lesson implementations and observations were fully documented. Post-lesson discussion were conducted wherein the first implementing teacher and the observers shared their opinions and reflections regarding the conduct of the lessons. The Lesson Study Group then chose which revisions will be applied in the second implementation conducted usually two days after the first implementation. The same process of observation and discussion was

repeated for as long as there were observed areas for improvement in the lesson plan.

C. P. Sta. Teresa Elementary School and Taguig Integrated School were recognized as the two Most Promising School Implementer of the Lesson Study on December 9, 2015. Both schools received a set of ICT equipment composed of one (1) laptop, one (1) multi-function printer, one (1) LED projector and one (1) pocket wi-fi. The Schools Division of Taguig City-Pateros, through Education Program Supervisor Dr. Leticia E. Andor also received the same set in recognition of the division’s support and cooperation extended to Project HOTS since its inception in 2012.

A faculty paper entitled, “Improving the Use of Physical Manipulatives in Teaching Science Concepts Through Lesson Study” was submitted by Rolando M. Tan, technical staff of the UP-NISMED to the International Journal for Lesson and Learning Studies. The paper shared the highlights of the lesson study conducted at Tenement Elementary School, Taguig City on May 13-15, 2013 under Project HOTS.

Plans to conduct training workshop for Grade 4 science teachers from all schools in the DepEd Division of Taguig City Pateros were set for summer 2016.



DOST COURSEWARE MOBILE APPLICATION SCREENSHOT ACCESSED AND DOWNLOAD THROUGH THE GOOGLE PLAY WEBSITE

INNOVATIVE SCIENCE AND MATHEMATICS TEACHING AND LEARNING

DOST-SEI converts courseware to Mobile Application (CMAApp)

The ubiquitous use of mobile devices like smartphones and tablets among the youth prompted DOST-SEI to convert its select Courseware modules in science and mathematics to run in Android operating systems. The converted modules were uploaded to Google Play Store and the DOST Courseware Mobile Application or CMAApp and was launched on December 10, 2015.

DOST CMAApp, which can be downloaded and installed for free, was rated as appropriate for age-group users by International Age Rating Coalition (IARC), a globally streamlined age classification process for digital games and mobile applications helping to ensure the consistent cross-platform accessibility of established, trusted age ratings by today’s digital consumers.

The project helped promote the use of mobile technology in education, in addition to stimulating greater socio-economic inclusion in learning. DOST CMAApp features ten (10) modules in science and mathematics each for Grades 7 and 8.



EACHERS FROM THE DIVISION OF CALAMBA CITY, LAGUNA TRY OUT THE DOST COURSEWARE MOBILE APPLICATION FOR GRADE 8 SCIENCE



THE DOST COURSEWARE MOBILE APPLICATION IN GOOGLE PLAY STORE CAN BE ACCESSED AND DOWNLOADED THROUGH ANDROID-OPERATED TABLETS AND SMART PHONES

- Grade 7 – Science
- Force and Motion
 - Ecosystems are Interconnected
 - Carrying Capacity of Ecosystems
 - Participating in an Earthquake Drill
 - The Weather Layer

- Grade 7 – Math
- Fundamental Operations of Integers
 - Adding and Subtracting Dissimilar Fractions
 - Translating Verbal Phrases to Algebraic Expressions
 - Problems of Inequality
 - Sum and Difference of Two Terms

- Grade 8 - Science
- The Respiratory Systems
 - DNA Structure
 - Genetic Engineering
 - Biological System of Classification
 - Effects of Technology on Evolution

- Grade 8 - Math
- Systems of Linear Equations and Graphs
 - Positive Integral Exponents
 - Simplifying Radical Expressions
 - Equations Containing Radicals
 - Arithmetic Sequence

SEI replicates and distributes DOST Courseware

After the succesful launch of the Interactive Mathematics Courseware for

Grades 1-6 and Interactive Science and Mathematics Courseware for Grades 7 and 8 in 2014, the Institute replicated and distributed these in 2015.

These sets of courseware were developed as tools to help improve the teaching and learning of science and mathematics (S&M) among students in public elementary and secondary schools.

The Grades 1-6 Interactive Courseware contains a total of 60 modules in Mathematics. It was disseminated to 500 elementary teacher-beneficiaries nationwide. The Grade 7 courseware contains a total of 132 modules in S&M, while the Grade 8 courseware contains a total of 117 modules in S&M. Prior to replication, the Chief and Technical Staff of SEID reviewed these sets of courseware based on the suggestion of its Director, Dr. Josette T. Biyo, on March 30-31, 2015 at the Estancia Resort Hotel, Tagaytay City. The group reviewed a total of 249 modules (130 Science and 119 Mathematics) and identified various modules that need to be revised for further improvement of the courseware. Three (3) former Courseware Designers/Developers completed the revisions of the Grades 7-8 courseware in December 2015. The courseware will be replicated and disseminated in 2016.



THE CD/DVD COPIES OF GRADES 1-6 INTERACTIVE COURSEWARE IN MATHEMATICS AND GRADES 7-8 INTERACTIVE COURSEWARE IN SCIENCE AND MATHEMATICS



Mobile IT Classroom (MITC) deployed in provinces.

The MITCs are air-conditioned 32-seater buses equipped with 16 working tables and educational technology facilities with interactive instructional/learning materials for students of science and mathematics. Each unit is also equipped with a generator set as a source of power for use in areas without electricity.

In 2015, there were only two MITC units deployed in the provinces. One MITC bus is deployed in Surigao del Norte , donated by SEI to the Local Government Unit (LGU) based on the request of Governor Sol F. Matugas, to be able to sustain its program on IT education. It was formally turned over to the LGU on 02 December 2015 at the Provincial Capitol, Surigao City.

The MITC unit deployed in the Province of Camarines Sur, through the Partido Development Administration (PDA), actively conducted trainings to students and teachers in various municipalities of the province. In 2015, the PDA trained a total of 1,458 students and 185 teachers in 19 elementary schools in the province.



STUDENTS AND TEACHERS TRAINED BY PARTIDO DEVELOPMENT ADMINISTRATION (PDA) UNDER THE MITC PROJECT IN CAMARINES SUR IN 2015



MITC BUS DONATED TO THE LOCAL GOVERNMENT UNIT OF SURIGAO DEL NORTE.

RECIPIENTS POSED WITH SEI DIRECTOR, DR. JOSETTE T. BIYO AND DOST UNDERSECRETARY DR. ROWENA CRISTINA GUEVARRA DURING THE TURNOVER OF COPIES OF THE COMPENDIUM TO THE WINNERS OF THE 1ST AND 2ND SEARCH WINNERS AND DEPED REPRESENTATIVE. IN THE PICTURE FROM LEFT TO RIGHT: DR. BIYO, DR. GUEVARRA, DR. LETICIA E. ANDOR OF DEPED SCHOOLS DIVISION OF TAGUIG CITY AND PATEROS, DR. ELENA B. TASIC, PRINCIPAL OF TABACO NATIONAL HIGH SCHOOL, MR. RONALDO C. REYES, PROJECT LEADER OF ONE OF THE WINNING INNOVATIONS OF THE 2ND SEARCH, TWO TEACHERS FROM LOOC NATIONAL HIGH SCHOOL AND ISABELITA A. HIZON, FORMER PRINCIPAL OF LOOC NATIONAL HIGH SCHOOL AND PROJECT LEADER OF ONE OF THE WINNING INNOVATIONS OF THE 1ST SEARCH.



SEI publishes and distributes Compendium of Innovative Practices in Managing Large Classes

From 2011 to 2014, the Search for Innovative Practices in Managing Large Classes for Effective Teaching and Learning of Science and Mathematics was conducted with the goal of documenting innovative practices in managing large classes that improved the quality of teaching and learning in classrooms with more than 51 students.

Ten of the 15 classroom management practices that qualified in the two Search activities were found to improve the teaching and learning of science/mathematics of the students exposed to them. These practices were rewritten to simplify the procedures so interested teachers can follow and apply them.

These innovations were compiled, published and distributed to schools

with large classes and to schools division offices of the Department of Education. The management practices could be used in its entirety or with modifications in classrooms with 50 or more students.

Project ARISE launches 21st century educational environment.

To meet the needs of the 21st Century learners, the Institute conceptualized, established and launched the 21st Century Classroom and Open Resource Center on December 10, 2015.

The 21st Century Classroom is designed to promote collaborative learning through various digital teaching technologies to help teachers and students connect with data and other resources.

The Open Resource Center meanwhile is an open learning space set to promote an atmosphere of academic and scientific research, discussion and collaboration where stakeholders could have free access to resources and interactive content, and features SEI innovations, projects, researches and training resources on science and mathematics education.

These two facilities are part of the project dubbed as *Access to Resources and Innovations in Science Education (ARISE)*. ARISE is an ecosystem of education, information and communications technology resources and innovations that will serve as a support system to the K to 12 and Science, Technology, Engineering, and Mathematics (STEM) education.



THE OPEN RESOURCE CENTER (ORC) FEATURES VARIOUS DIGITAL AND NON-DIGITAL RESOURCES OF SEI SUCH AS: SEI PUBLICATIONS AND RESEARCHES, DOST COURSEWARE, ASTHRDP – DOST SCHOLARS' RESEARCHES/ STUDIES AND WHERE STAKEHOLDERS COULD HAVE FREE ACCESS TO RESOURCES AND INTERACTIVE CONTENT, SCIENTIFIC RESEARCH, FOSTER DISCUSSION AND COLLABORATION



TEACHERS FROM C.P. TERESA ELEMENTARY SCHOOL, TAGUIG CITY DURING THE ORIENTATION OF THE FEATURES OF THE 21ST CENTURY MODEL CLASSROOM

As a 21st century learning support system, ARISE adheres to the five critical areas: 1) Standards; 2) Assessment of skills; 3) Curriculum and instruction; 4) Professional Development; and 5) Learning Environments.

DOST-SEI also conducted orientation for teachers, head teachers, and supervisors from the city schools division in Manila, Muntinlupa, Mandaluyong, Taguig-Pateros, Calamba City and Laguna.

MITC Bus transforms into EUREKA! Bus.

The old Mobile Information Technology Classroom bus, which was previously deployed in Cebu City, was shipped back to SEI for repair and conversion into a EUREKA! Science on the Go bus in 2015. The bus is designed to be a mobile science classroom and laboratory facility that provides hands-on innovative

THE REFURBISHED MITC BUS NOW DUBBED THE EUREKA! BUS, READY TO BE EQUIPPED WITH LABORATORY AND ICT FACILITIES.



PHOTOS SHOW THE REFURBISHED INTERIORS OF THE EUREKA! BUS.



teaching and learning activities to the S&M teachers in areas where there are limited or no information and communications technology (ICT) facility and laboratory equipment.

During its conversion, the exterior (body and tires) and interior (main engine, sub-engine/air conditioning unit, other mechanical and electrical components, lightings, and other fixtures) of the bus were refurbished based on the design suited to accommodate participants for the trainings/workshops and laboratory activities. It will soon be equipped with various laboratory and ICT facilities.

The bus, which was launched on December 10, 2015, will serve as a venue for various training programs starting 2016.



RESEARCH ON S&T HUMAN RESOURCES AND EVALUATION OF DOST-SEI PROJECTS

Data on S&T skills migration updated.

The Institute completed the data gathering and analysis phase of the S&T skills migration study that was updated in 2014. The study covered the period 2005-2013, and has two components:

- 1) Emigration of Science and Technology-Educated Filipinos (Permanent Migrants),
- 2) OFWs with S&T occupations (Temporary migrants).

Secondary data from POEA for the temporary migrants and CFO for permanent migrants were utilized in this study.

Temporary Migrants

In general, the annual outflow of newly-hired OFWs showed an upward trend, except in 2003 and 2009. On the average, there were 316,000 OFWs based on the data from 1998 to 2013. The yearly outflow of OFWs has doubled after 15 years, from around 220,000 in 1998 to about 465,000 in 2013.

The occupations of OFWs were reclassified by whether or not they were considered as S&T-related jobs. On average, about 6% (or around 18,000) of all OFWs had S&T occupations. The highest number of S&T OFWs was recorded in 2011 with about 31,000 (7%) while the lowest was in 1998 with only around 10,000 (4%). There was a significant positive increase of 175% in 16-year period, from around 10 thousand in 1998 to almost 27 thousand in 2013 (*see figure 6*).

In terms of distribution of S&T OFWs by occupations, nursing and midwifery professionals comprise the highest number among other occupations,

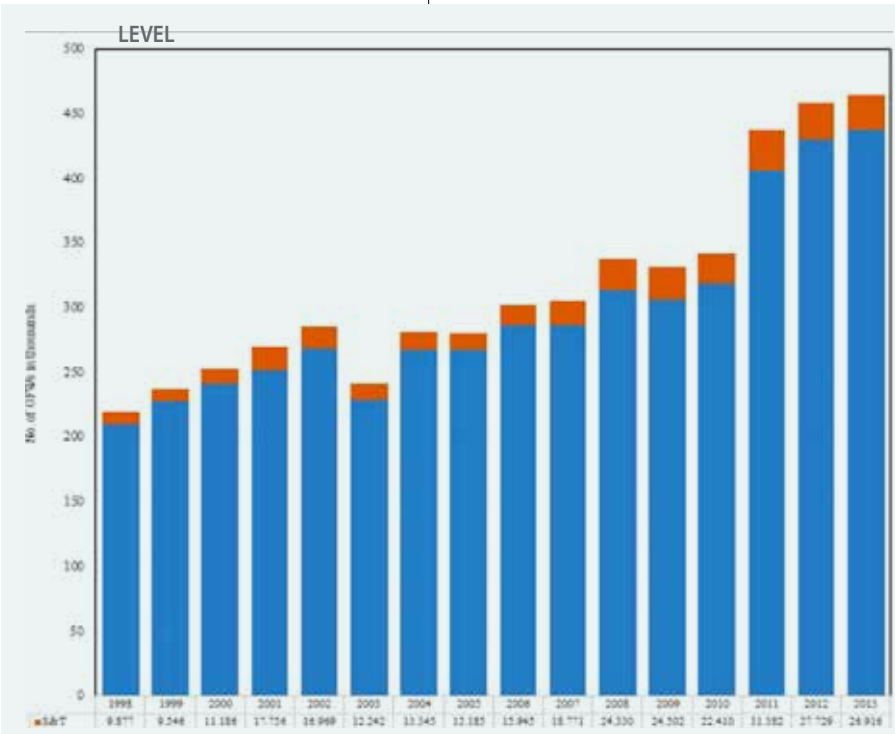


Figure 6. Number of OFWs by S&T/Non-S&T Classification: 1998-2013

both in terms of level and percentage, followed distantly by engineers and related professionals and other health professionals (*see figure 7*).

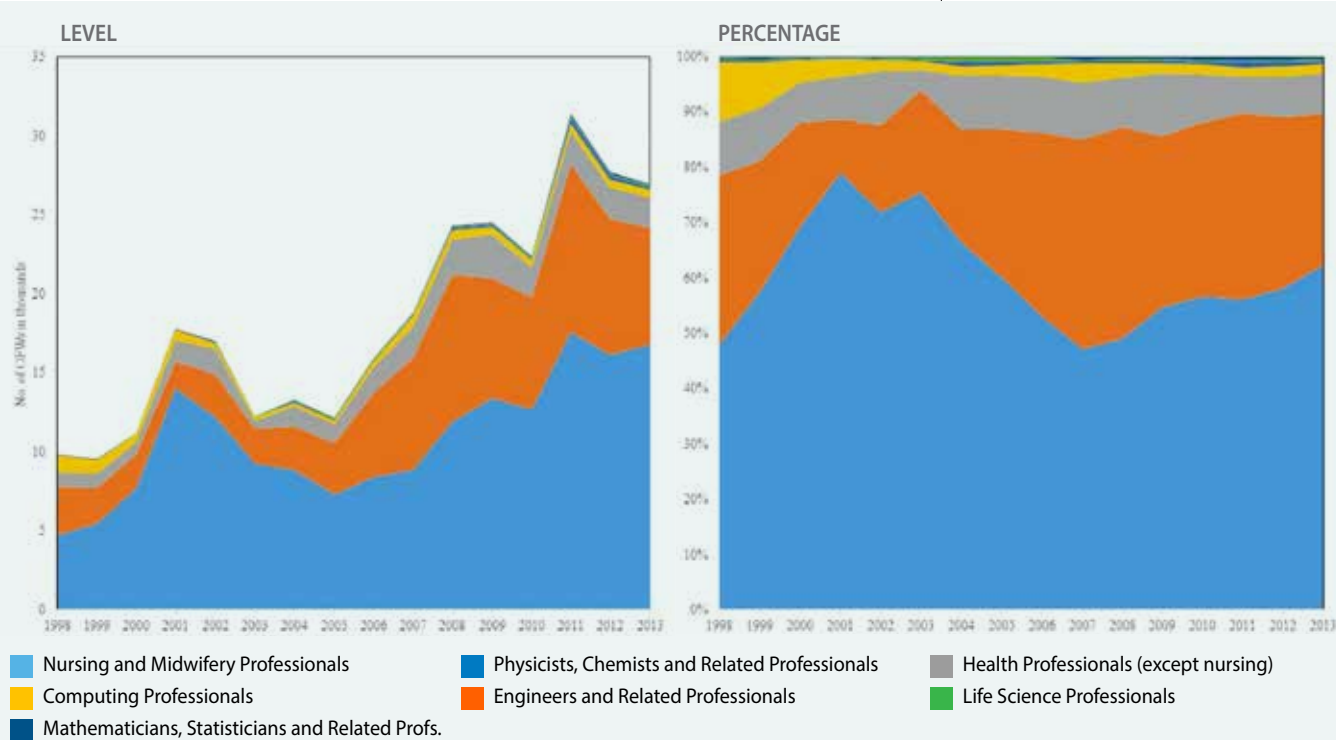


Figure 7. Distribution of S&T OFWs by Occupational Group: 1998-2013

On the average, nurses and midwives made up 59 percent of all S&T OFWs, accounting to about 11,000. On the other hand, 28 percent of S&T OFWs (or around five thousand) were engineers and related professionals. Only eight percent (or 1,500) were health professionals. The remaining five percent (or 730) were IT and hard science professionals, namely, computing professionals, physicists, chemists and related professionals, life science professionals, or mathematicians, statisticians, and related professionals.

The annual outflow of nurses that dropped in the period of 2003-2005 began to increase again from 2006 until 2013, reaching to almost 18,000 in 2011. This number decreased slightly to about 17,000 in 2013. The annual outflow of engineers also started to increase in 2006 and peaked to almost 11,000 in 2011 before slightly reducing to 7,000 in 2013. Observably, engineers made up almost one third of all S&T OFWs from 2006 to 2008.

IT and hard science professionals comprised only a small proportion of S&T OFWs, although their expertise may not be a negligible loss.

Permanent Migrants

When the Filipino emigrants from 2005-2013 are grouped according to broad S&T Tertiary Degrees they have completed, more than one third or 39.67% belong to Health Professionals. This is followed by Engineering and Engineering Trades (27.99%), Computing Professional (10.82%), Architecture and Building (10.40%) and Teacher Training and Education Science (4.20%). The broad groups of S&T Tertiary Degrees with the least number of Filipino emigrants are the Environmental Protection (0.01%), Transport Services (0.04%) and Veterinary Professionals (0.54%).

Figure 9 shows that prior to migration to other countries, Nursing and Midwifery Professionals (21.07%) top the list of broad groups of S&T occupations that are documented by CFO. The Architects, Engineers and Related Professionals obtained 12.31%, while only 5.57% in the Health Professions (except nursing). Small proportions are observed for the Computing Professionals and Physicist, Chemists, Life Sciences, and Mathematics, Statisticians and Related Professionals with only 2.09%, and less than 1%, respectively.

Tracer Study on DOST-SEI S&T Scholar Graduates

The Department of Science and Technology through the Science Education Institute (DOST-SEI) by virtue of Republic Act (R.A.) No. 7687 otherwise known as the S&T Scholarship Act of 1994 is mandated to undertake efforts on accelerating the production of the country's S&T manpower capability through the grant of scholarships in mathematics, science, and technology. This TRACER (Tracking Actual Career Experience Report) study is conducted to determine the present situation and career movement of DOST undergraduate grantees and to document their contribution at the institutional, national and international levels. The



Figure 8. Distribution of Filipino Emigrants by Broad Groups of S&T Tertiary Degrees



Figure 9. Distribution of Filipino Emigrants with College Degree by S&T Occupation prior to Migration: 2005-2013

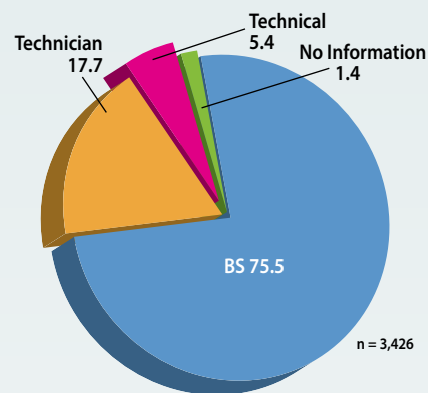


FIGURE 10:
Percent Distribution of Tracked Scholar-Graduates by Course Taken

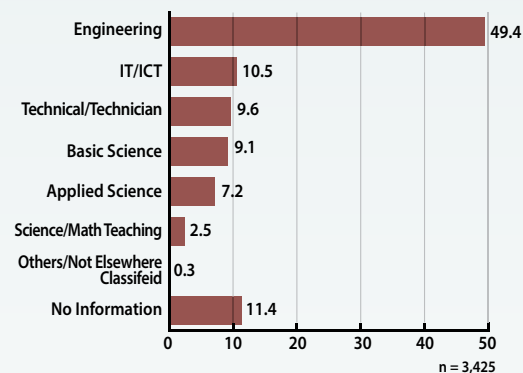


FIGURE 11:
Percent Distribution of Tracked Scholar-Graduates by Course (Grouped)

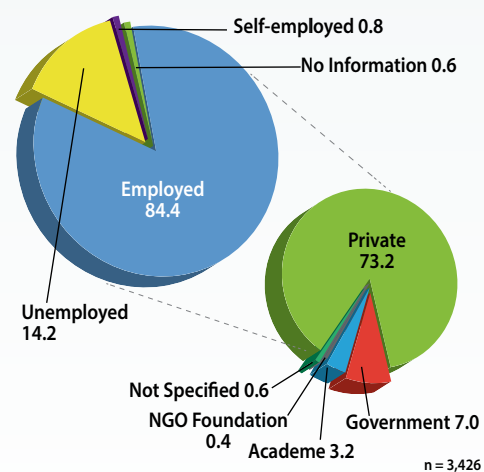


FIGURE 12:
Percent Distribution of Tracked Scholar-Graduates by Current Employment Status and Sector

data for this study was obtained mainly from DOST-SEI scholar-graduates who requested for clearance, either for official or personal purposes (e.g., employment/travel abroad) from 2000 to 2012 only. Thus, the results presented below may not necessarily reflect the actual situation of all scholar-graduates of the program.

Highlights:

- A total of 3,426 scholar-graduates were included in the analysis, which represents 15.3% of the total graduates from 2000 to 2012.
- RA7687 scholars comprised 83.5% of all tracked scholar-graduates while 10% were Merit scholar-graduates.
- About half (49.4%) of the subjects were graduates in Engineering courses; 10.5% in IT/ICT courses; and 9.6% in Technical/Technician courses. Only a few were graduates in Basic and Applied Sciences, 9.1% and 7.2%, respectively (see figure 11).
- Disaggregating the scholar-graduates by employment status, 8 out of 10 were employed and 1 out of 10 were unemployed (see figure 12).
- Among the employed, 82.2% were holding permanent positions and 13.8 were employed either as contractual or temporary employees. About 4.0% did not specify their employment status (Figure 13).
- Most of the employed (73.2% were working in private companies. The Rest were either in the government (7.0%), in the academe (3.2%), or in NGOs/Foundation (0.4%), while 0.6% or 21 subjects did not specify the sector in which they were employed (see figure 12).
- In terms of employment location, only fifteen (15) or 0.4% were working overseas, while 84.0% were locally employed (Figure 14).
- Among those who were employed, 40.5% were working in the Engineering field, which is the highest among the occupational fields, 10.7% have jobs in Technical or Technician fields. However, a significant percentage (15.5%) was

working in non-S&T fields. Only a few were involved in Basic and Applied Sciences, 6.2% and 7.9%, respectively. The same observation was also noted among those working in the academe/teaching (only 4.2%) (see figure 15).

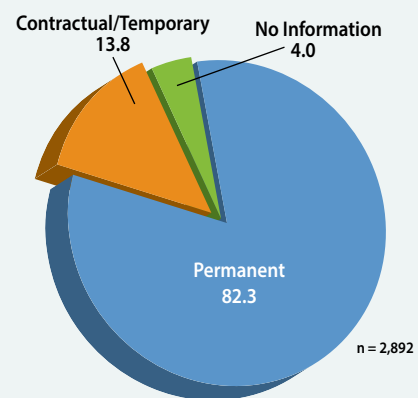


FIGURE 13:
Percent Distribution of Tracked Scholar-Graduates by Employment Status

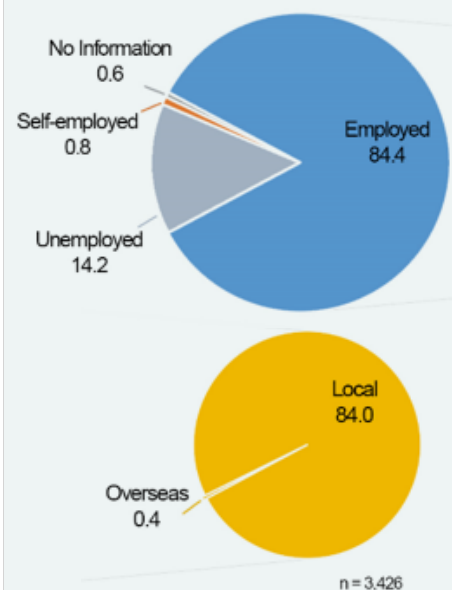


FIGURE 14:
Percent Distribution of Tracked Scholar-Graduates by Current Employment Status and Location

Survey helps improve processes under S&T Scholarship Program

Due to the increasing number of applicants to the DOST-SEI Undergraduate S&T Scholarship Program, it became a necessity to review its policies and assess the quality of service provided at various stages to scholarship beneficiaries. The results of such a survey will provide valuable inputs to help improve the administration of the scholarship programs that the Institute offers.

The data collection was done at SEI in Bicutan, Taguig City during the application period from August to September 2014 among applicants to the 2015 S&T DOST-SEI Undergraduate Scholarship Program. A total of 854 accomplished feedback questionnaires were submitted by the respondents comprising 531 students, 294 parents and 29 relatives/friends. Majority of those applying for the scholarship program (84.1%) were from the public schools, while only a small percentage (14.8%) came from the private schools.

Source of Information about the Scholarship Program: Student-Respondents

As indicated in Figure 18, among the 573 student-respondents who accomplished the feedback questionnaires, majority (62.0%) cited school as the main source of information about the DOST-SEI undergraduate scholarship program. A little more than one-fifth (22.8%) and ten percent (10.5%) of the student-respondents mentioned friends and DOST website, as the source of information, respectively. Members of the family (1.1%), posters and brochures (0.5%) were also cited as the other sources of information about the program (Figure 18).

Majority (75.2%) of respondents rated very good to excellent on the over-all scholarship application process (e.g. venue, assistance extended by DOST-SEI personnel, documentary requirements, etc.). The following comments and recommendations for the improvement of the delivery of services of the program were given by the respondent:

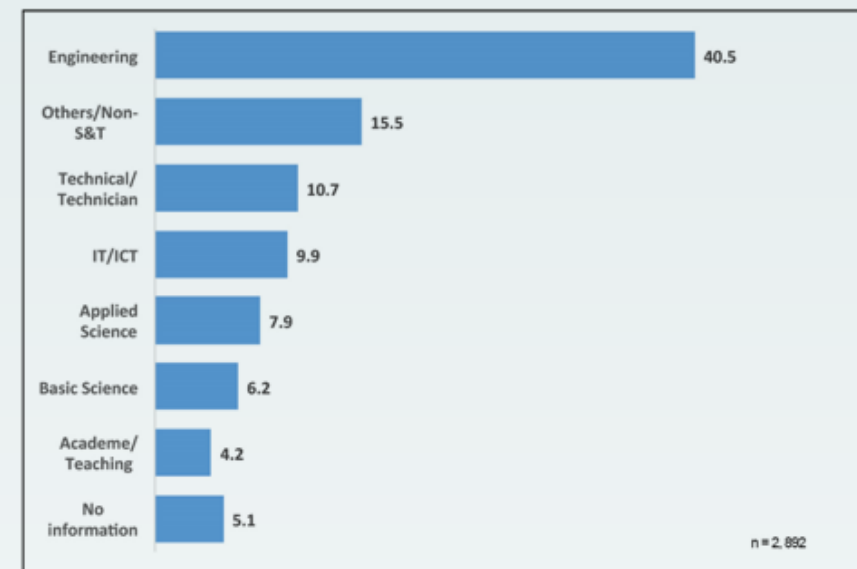


FIGURE 15:
Percent Distribution of Tracked Scholar-Graduates by Occupational Field (Grouped)

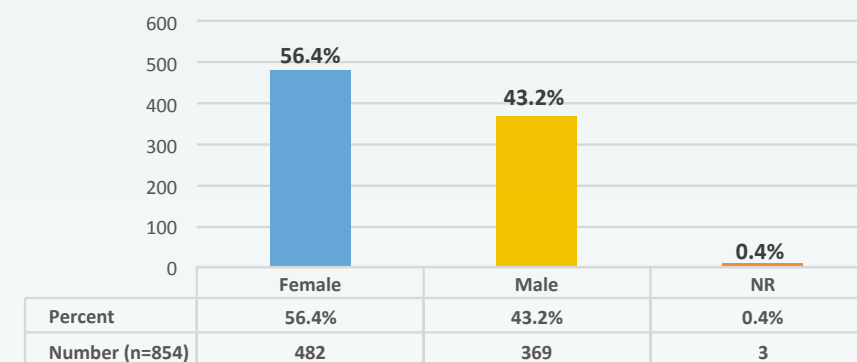


FIGURE 16: Distribution of applicants to the 2015 DOST-SEI undergraduate S&T scholarship program by sex

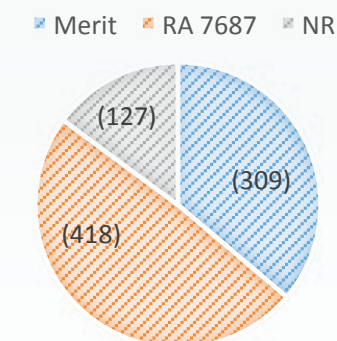


FIGURE 17: Percentage distribution of applicants to the 2015 DOST-SEI undergraduate S&T scholarship by type of scholarship program applied for

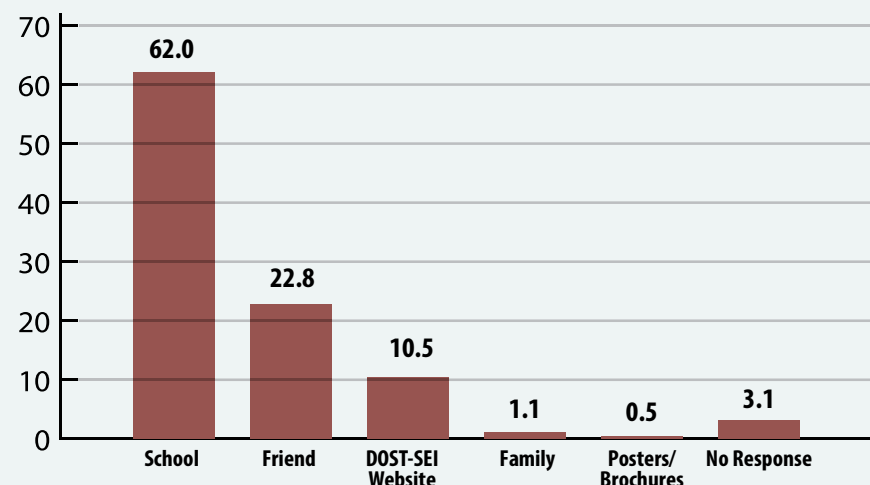


FIGURE 18: Percentage distribution of student-respondents by source of information about the DOST-SEI Scholarship Program

- Provide more personnel/staff to assist during the application period.
- Add more centers/sites/branches/satellite offices for the submission of accomplished applications forms.
- Develop on-line submission of applications.
- Put direction/signboard from the DOST gates to SEI.
- Application forms should be available in school.
- Food/snacks should be made available in the area.
- Provide additional roofing for shelter outside.
- Include required documents in the checklist (e.g., certifications).
- Need for a wider coverage for the announcement so that more people will be informed and can apply.
- Need to update the SEI website on the status of the application process, the deadline of filling.
- Post in social networking sites so that people will be able to apply, specially those who really need the scholarship.

Many of the respondents likewise gave good comments about the SEI staff and the scholarship program. Feedback studies are thus recommended for other projects and activities of the Institute.

SEI officials and staff join SUNRISE program.

To help enhance the competence and professional skills of SEI officials and employees amidst the new and changing demands of science and mathematics education, several activities were arranged with reputable local and international educational institutions for knowledge exchanges, collaborative teaching, research, and other relevant S&T activities.

International Association for the Evaluation of Educational Achievement (IEA).

In 2015, DOST-SEI renewed its membership in the International Association for the Evaluation of Educational Achievement (IEA). The IEA is an independent, international cooperative of national research institutions and government research agencies that conducts comparative studies of educational achievements to gain an understanding of policies and practices within and across educational systems. The Philippines was represented by Dr. Josette T. Biyo, SEI Director, during the 55th Annual General Assembly of the IEA on October 3 to 9, 2015 in Mexico City. Dr. Biyo shared a study on TIMMS-Advanced 2008.



55TH ANNUAL GENERAL ASSEMBLY OF THE INTERNATIONAL ASSOCIATION FOR THE EVALUATION OF EDUCATIONAL ACHIEVEMENT (IEA) HELD ON OCTOBER 3-9, 2015 AT MEXICO CITY, MEXICO

ASEAN + 3 CENTER FOR THE GIFTED IN SCIENCE (ACGS) BOARD OF DIRECTOR MEETING ON NOVEMBER 24-27, 2015 AT REPUBLIC OF KOREA

Table 17: Local and International meeting and conferences

EVENT	LOCATION	DATE	PARTICIPANTS
17th Annual Educator Academy	Pittsburgh, Pennsylvania	May 9-15, 2015	• Ms. Cynthia T. Gayya, Sr. Science Research Specialist
37th APEC HRDWG Meeting and 5th Meeting of the Policy Partnership on Science, Technology and Innovations (PPSTI)	Boracay, Aklan	May 13-19, 2015	• Dr. Josette T. Biyo, Director • Ms. Imelda S. Sario, Sr. Science Research Specialist
International Conference on Science and Technology	De La Salle University, Manila	Sept 10-11, 2015	• Ms. Maria Lourdes V. Felicitas, Science Research Specialist II • Ms. Ma. Cecilia M. Sacopla, Science Research Specilaist II • Ms. Joan G. Salise, Science Research Specialist II • Ms. April S. Dumayag, Science Research Specialist II • Ms. Jobelle P. Gayas, Science Research Specialist II • Ms. Mary Angelica D.C. Palomo, Science Research Specialist I
9th ASEAN+3 Center for the Gifted on Science (ACGS) Board of Directors' Meeting	Jeju, Republic of Korea,	Nov 24-27, 2015	• Dr. Josette T. Biyo, Director
International Conference on Education and Psychology	Nagoya, Japan	Nov 24-27, 2015	• Ms. Joan Calise



The diversity of socio-political and cultural occurrences in ASEAN entails the establishment of a robust communication infrastructure to deal with myriad issues like migration, social development, and disaster and risk mitigation to climate change and renewable energy, people and conflict resolution, among others.

DOST-SEI recognizes the importance of aligning the strategic goals on national development and poverty reduction of individual countries with ASEAN's overall aspirational, transformational and universal development agenda to boost the region's efficiency

Creating Communication and Information Links



and productivity. Every step the Institute takes towards enhancing its ICT network that brings Filipinos closer to having accessible and comprehensive education, wherever they may be.

DEVELOPMENT OF
INFORMATION
NETWORK SYSTEMS
FOR THE IMPROVEMENT
OF S&T EDUCATION
LINKAGES (MIS PROJECT)

**Institute updates ICT
architecture and manpower
skills.**

*Software upgrades and content
updates.*

Among the improvements in the Institute’s ICT facilities was its internet connection, which was enhanced

from 18MBps to 24MBps courtesy of Radium Telecoms, Inc.

The MIS unit also continuously monitored the Institute’s bandwidth utilization on a daily basis, generating reports on individual network usage, and updated periodically the network security measures and protocols.

The unit also performed regular updates in the Institute’s website (www.sei.dost.gov.ph) to ensure all content are in accordance with the DBM’s Transparency Seal initiative. Consequently, the Transparency Seal was updated every quarter.

In terms of content, 23 news articles were posted in the website throughout 2015, including the list of Junior Level Science Scholarship (JLSS) qualifiers. Further, the websites www.science-scholarships.ph and www.tagisangrobotics.ph of the Scholarship Division and the Tagisang Robotics project, respectively, were constantly maintained.

**Hardware updates and personnel
training.**

The MIS unit obtained new switches, laptops, storages devices and other IT equipment, and installed a Wi-Fi access point at the Institute’s lobby and conference room to provide internet access for applicants and guests.

The unit also conducted a five (5) day in-house training entitled, “PHP Programming and MySQL Database Administration – Level 1.” Experts from University of the Philippines-Los Baños trained the selected SEI staff to develop their knowledge and skills on basic programming and database administration. The training aimed to provide participants with knowledge and understanding of the different Information Systems developed and implemented within the network.

Finally, the unit conducted hardware and software audit to evaluate and secure the network and to comply with the ICT policies and standards. Technical support for the IT network users of the Institute was continuously provided to help ease the accomplishment of the Institute’s programs and projects.



SEI WEBSITE SHOWING THE TRANSPARENCY SEAL AS PART OF ITS COMMITMENT TO ENSURE TRANSPARENCY AND ACCOUNTABILITY



Gender and Development

GENDER AND DEVELOPMENT PROGRAM CONTINUES LINE UP OF ACTIVITIES

In 2015, the Institute continued to implement various projects geared towards creating gender awareness, identifying gender issues, and mainstreaming gender perspective in its policies, programs and projects.

The activities are classified as organization-focused and client-focused. The first pertains to activities that are gender-responsive policies, programs and projects addressing the gender issues of employees, particularly those that affect women's performance. Client-focused activities, on the other hand, are activities that address the gender issues of the DOST-SEI's clients.

The GAD program is in response to Memorandum Circular 2011-01 on "creation, strengthening and institutionalization of the Gender and Development (GAD) Focal Point System", and the PCW-NEDA-DBM Joint Circular 2012-01 on "the preparation of GAD Plan to implement Magna Carta of Women."

Philippine Celebration of the International Women's Day on March 08, 2015

The National Women's Day celebration held on March 8, 2015 recognized and highlighted women's key roles and accomplishments in leadership, power and decision-making. It was bannered by the theme "*Juana, Desisyon Mo ay Mahalaga sa Kinabukasan ng Bawat Isa, Ikaw Na!*"

SEI employees united with Philippine Commission on Women (PCW) and other agencies at Quezon Memorial Circle, Quezon City, to pay tribute to all women leaders and encourage more women to lead in different sectors of society. Women or "Juanas", as they were called, actively participated in the parade, simultaneous street dance, and inspirational talks.



SEI EMPLOYEES SHOW THUMBS UP TO ALL EMPOWERED JUANAS DURING THE NATIONAL WOMEN'S MONTH CELEBRATION

DOST-wide Women's Month Celebration

SEI also joined other DOST attached agencies in the celebration of Women's Month on March 16, 2015. Among the highlights of the event was a poster making contest illustrating the role played by Filipino women in leadership, power, and decision making. Each agency also prepared a statement and chant, voicing out their views about the Women's Month theme.

Other activities included dance marathon (Zumba and the street dance steps), forum on women's leadership, exhibits and trade fair, and make-over session by Ricky Reyes. All participants actively joined the event and displayed the 2015 campaign shirt.



SEI EMPLOYEES DISPLAY THE AGENCY'S ENTRY TO THE POSTER MAKING CONTEST (3RD POSTER, CENTER)



SEI EMPLOYEES RECEIVED THE 2ND BEST AGENCY STATEMENT PRESENTATION AWARDED BY DOST SECRETARY MARIO G. MONTEJO, UNDERSECRETARY ROWENA CRISTINA L. GUEVARA, AND DIRECTOR ELIZABETH A. FONTANILLA

Framework Development Workshop for DOST-SEI

The DOST-SEI GAD Focal Point System (GFPS) held a Gender and Development Framework Workshop in Calamba, Laguna on June 22-23, 2015. The said activity was attended by members of the GAD Focal Point System (GFPS) composed of six (6) female and one (1) male employees, and Ms. Marita C. Pimentel, PCW-GAD Resource Pool member, served as the Resource Person during the workshop.

The activity aimed to develop GAD programs and plans from 2017 to 2020 and set the direction for DOST-SEI in order to achieve its vision of becoming the GAD leader in STEM Education.



PROF. MARITA C. PIMENTEL, MEMBER OF THE PCW GENDER RESOURCE POOL, FACILITATES THE GAD FRAMEWORK DEVELOPMENT WORKSHOP



GAD Audit Workshop

To determine the status of gender and development program implementation in SEI, the GAD Focal Point System organized a GAD Audit Workshop on December 9-10, 2015 also in Calamba, Laguna.

In the said workshop, the GFPS members were trained on the use of Gender Mainstreaming Evaluation Framework (GMEF) as a tool that enhances the GAD Planning and Budgeting. They were also oriented on the basic concepts and operations of GAD Audit.

2015 18-Day Campaign to End Violence Against Women

The 18-day campaign dubbed “End Violence Against Women (VAW)” is being observed every year from November 25 to December 12 based on Presidential Proclamation 1172 s. 2006. This campaign aims to raise awareness that violence against women is a public issue of national concern. As SEI’s support to the campaign, ten (10) female and five (5) male employees participated in the kick-off activity “Assembly of Anti-(VAW) Advocacy Supporters,” joining other government, non- government, and private sector stakeholders. This was held at Aliw Theater, Pasay City on November 25, 2015.

Moreover, SEI-GFPS organized a half-day activity on VAW in relation to this year’s theme “End VAW Now! It’s Our Duty!: Gains and Ways Forward.” The activity aimed to increase awareness of SEI employees on Violence Against Women. This was held on December 1, 2015 at WGP Conference Hall, SEI, Bicutan, Taguig City.



THE GAD FOCAL POINT SYSTEM (GFPS) LISTENS INTENTLY TO PROF. MARITA C. PIMENTEL WHILE SHE DISCUSSES HOW TO ACCOMPLISH THE GENDER MAINSTREAMING EVALUATION FRAMEWORK (GMEF) MATRIX, A TOOL TO ASSESS THE GENDER MAINSTREAMING PROCESS OF THE AGENCY



SEI REPRESENTATIVES PROUDLY RAISE THEIR HANDS AS A CAMPAIGN TO END VIOLENCE AGAINST WOMEN (VAW)

The activities included a lecture on the issues of VAW at work given by Ms. Hazelyn C. Dimacale, Board Member for Labor Sector of the Philippine Commission on Women; and basic self-defense session which was facilitated by Mr. Francis Jude C. Ganzon, Training Specialist from NCR Training Center, Camp Bagong Diwa, Bicutan, Taguig.

MS. HAZELYN C. DIMACALE, PCW BOARD MEMBER FOR LABOR SECTOR, GIVES HER LECTURE ON VAW AT WORK AMONG SEI EMPLOYEES



THE AIKIDO CLUB, TOGETHER WITH THEIR SENSEI FRANCIS JUDE C. GANZON, TRAINING SPECIALIST FROM NCR TRAINING CENTER, CAMP BAGONG DIWA, TEACHES THE SEI EMPLOYEES ON THE BASIC SELF-DEFENSE TECHNIQUES



Development and distribution of information, education and communication (IEC) materials on GAD

Recognizing the importance of IEC materials to effectively communicate GAD concepts to SEI employees and its clients. Pamphlets, flyers and bookmarks were distributed during the Launching of Project ARISE and Awarding ceremony of Project HOTS. Teachers from Taguig City and Pateros Division, Manila and Sta. Rosa received the kits containing GAD materials.

Collection of sex-disaggregated data

Expected to be of great use in identifying GAD issues, sex-disaggregated data have been included in all DOST-SEI projects accomplishment reports. The data shall form part of the database system to serve as basis in performance-based gender responsive planning.

Various seminars/trainings/forums on GAD

SEI has been an actively participates in forums/trainings/seminars concerning GAD. The SEI GAD Focal Point System attended the following:

- Roundtable Discussion on Designing for Healthy Work and Living Environment on February 5, 2015 in Roxas Blvd., Pasay City
- Roundtable Discussion on Molecular Pathogenesis of Infectious Diseases on February 20, 2015 in Roxas Blvd., Pasay City
- 4th GAD Planning and Budgeting on November 04, 2015 Occupational Safety and Health Center (OSHC), Agham Road, Quezon City
- Sustaining Gender Mainstreaming in DOST: 2015 GAD Focal Point Assembly on December 14-15, 2015 at DOST Executive Lounge, DOST, Bicutan, Taguig City



THE GAD IEC MATERIALS DISTRIBUTED DURING SEI ACTIVITIES



S&T Capacity Building Activities

Scholars Under SEI Staff Development Program

STATUS	NAME	COURSE	START OF SCHOLARSHIP
Graduated (January 10, 2015)	Joan G. Salise	Master of Arts in Education major in Chemistry Education	1st Semester AY 2011-2012
Graduated (December 10, 2015)	Ma. Teresa R. Castillo	Master in Public Administration	1st Semester AY 2012-2013
On-going	Mark Ivan C. Roblas	Master of Development Communication	1st Semester AY 2012-2013
On-going (Thesis Writing)	April S. Dumayag	Master of Arts in Education (MAEd) major in Biology Education	2nd Semester AY 2012-2013
On-going	Randolf S. Sasota	Doctor of Philosophy in Education (Research and Evaluation)	1st Semester AY 2013-2014
On-going (Thesis Writing)	Ma. Cecilia M. Sacopla	Master of Arts in Education major in Biology Education	1st Semester AY 2013-2014
On-going	Ruby D. Laña	Doctor of Philosophy in Education (Research and Evaluation)	1st Semester AY 2014-2015

List of Employees Who Attended Conventions/Seminars/Trainings for the Year 2015

TITLE	PARTICIPANTS	VENUE	DATE
Intel ISEF “17th Annual Educator Academy”	Cynthia Gayya	Pittsburg, USA	May 11-15, 2015
2015 International Conference on Education Psychology	Joan Salise	Nagoya, Japan	November 4-6, 2015

TITLE OF TRAINING/SEMINARS/ WORKSHOPS		NAMES	VENUE	DATE
1	7th Annual National Convention (ANC)	Sheslee F. Subida Liezl M. De Lara Racquel M. Tolentino Josefina S. Sta. Maria Susan A. Dela Peña	Crown Regency Resort and Convention Center, Main Road, Boat Station 2, Boracay Island, Province of Aklan	March 17-20, 2015
2	Project Management: Skills for Success	Ma. Grace B. Sasota Jemmalyn C. Miniao	ActiveLearning, Inc., 2nd Floor, Designmix Building, 59 Connecticut St., Greenhills, San Juan	March 12-14, 2015
3	Training for the Enhanced eNGAS and eBudget System Users and Technical Course for IT Personnel	Sheslee F. Subida Racquel M. Tolentino Mark John Paul R. Capistrano Julie Anne G. Floralde Mary Ann A. Manila	COA Main, Commonwealth Avenue, Quezon City	March 13-17, 2015
4	Public Sector HR Symposium and Philippine Society for Training and Development (PSTD) National Convention	Joana Teresa Y. Medina	Waterfront Hotel, Lahug, Cebu City	May 27-29, 2015
5	In-house Orientation and Reorientation Programs on “Employees Rights, Privileges & Obligations” and “Sexual Harassment”	SEI Employees	W.G. Padolina Conference Room, Science Heritage Bldg., DOST Cmpd., Gen. Santos Ave., Bicutan, Taguig City	July 14, 2015
6	Disaster Management Seminar entitled “Taguig, Handa sa Yanig”	Philip J. Bue Randolf S. Sasota Edwin B. Lopez Julian C. Rubis Antonio B. Monte Kenneth F. Boston Gerald P. Dela Cruz James Carlo N. Cerda Jonathan C. Maratas Gilbert S. Ambac	DOST Executive Lounge, DOST Compound, Gen. Santos Ave., Bicutan, Taguig City	July 31, 2015

TITLE OF TRAINING/SEMINARS/ WORKSHOPS		NAMES	VENUE	DATE
7	In-house Seminar on ISO 9001:2008 Awareness	SEI Employees	W.G. Padolina Conference Room, Science Heritage Bldg., DOST Cmpd., Gen. Santos Ave., Bicutan, Taguig City	Batch 1: July 31, 2015 Batch 2: August 03, 2015
8	PHILGEPS Training	Susan A. Dela Peña Ruben P. Salac, Jr.	AM Zone Internet Café, Ortigas Ave. Ext., Rosario, Pasig City	August 25-26, 2015
9	Global Forum for Research and Innovation for Health	Ma. Daisy A. Demoni Ma. Elena C. Agbuis Jobelle P. Gayas Regina C. Beleno James Carlo N. Cerda	Philippine International Convention Center (PICC), V.Sotto St., Pasay City	August 24-27, 2015
10	In-house Seminar on Internal Quality Audit	Luz S. Rimorin Ma. Daisy A. Demoni Alicia L. Asuncion Ruby R. Cristobal Ruby D. Laña Rodelio G. De Asis Imelda S. Sario Liezl M. De Lara Philip J. Bue Charilyn Joy M. Layus Josefina A. Fernandez Peter Gerry P. Gavina Cynthia T. Gayya Juan Antonio R. Tuazon Josefina S. Sta. Maria Anita E. Gorgonio Jobelle P. Gayas Randolf S. Sasota Ma. Grace B. Sasota Joana Teresa Y. Medina Regina C. Beleno	W.G. Padolina Conference Room, Science Heritage Bldg., DOST Cmpd., Gen. Santos Ave., Bicutan, Taguig City	October 07-09, 2015
11	LIKHA PILIPINAS: The 1st Philippine Multi-disciplinary Summit on Creativity and Innovation	Ruby D. Laña Josephine S. Feliciano Jobelle P. Gayas Mary Angelica D.C. Palomo James Carlo N. Cerda	Cultural Center of the Philippines (CCP) and De La Salle University	October 13-14, 2015
12	Effective Project Management	Gaius Karl G. Noble Ma. Cristina Mae S. Ilaw	Guthrie-Jensen Consultants, Inc.	October 20-22, 2015
13	AGAP Convention-Seminar entitled “Bolstering Good Governance Through Public Expenditure Management Reforms” and to receive the award as one of this year’s Outstanding Accounting Offices	Luz S. Rimorin Philip J. Bue Nona L. Docor Julie Anne G. Floralde	Aziza Paradise Hotel, Puerto Prinsesa City	October 21-24, 2015
14	“Effective Writing and Presentation of Statistical Reports”	Peter Gerry P. Gavina	Philippine Statistical Research Training Center, Quezon City	November 04-06 and 09-13, 2015
15	The Philippine Budgeting System	Kristine Lean V. Cura	Hotel Kimberly, Manila	November 4-6, 2015
16	17th Moral Recovery Program (MRP) National Convention/Workshop with the theme “Sa Bayanihan at Kapatiran, Kapayapaan at Kaunlaran Makakamtan”	Joana Teresa Y. Medina Ma. Teresa R. Castillo	Grand Menseng Hotel, Davao City	November 10-13, 2015
17	Training on Patent/Prior-Art Search	Rafael L. Olivar Randolf S. Sasota	UP-Computational Science Research Center (CSRC), Diliman, Quezon City	December 01-03, 2015
18	5th Luzon Convention of Human Resource Management Practitioners (CHRMF)	Luz S. Rimorin Joana Teresa Y. Medina	CAP Trade and Convention Center, Camp John Hay, Baguio City	December 01-03, 2015

Institutional Awards & Recognition

APEC Green Video Festival

Hyundai New Thinker Summit was recognized during the APEC Green Video Festival which is designed to increase science awareness and greater press coverage of Science, Technology and Innovation.



Managing S&I Resources

STATEMENT OF ALLOTMENT & OBLIGATIONS

(Amount In Thousand Pesos)

PAPS	PS		MOOE		CO		TOTAL		% Utilization
	Allotment	Obligation	Allotment	Obligation	Allotment	Obligation	Allotment	Obligation	
General Administration and Support Services	18,994	17,430	6,607	6,380	-	-	25,601	23,810	93%
OPERATIONS:									
Development, Utilization and Implementation of S&T Scholarships	4,527	4,425	2,180,355	2,179,193	-	-	2,184,882	2,183,618	100%
Research, Promotion and Development of S&T Education and Training	10,540	10,431	17,211	16,483	-	-	27,751	26,914	97%
Locally Funded Project – Support to the Presidential Implementing PD 997	-	-	355	346	-	-	355	346	97%
Automatic Appropriations (RLIP)	2,199	2,050	-	-	-	-	2,199	2,050	93%
Total Budget	36,260	34,336	2,204,528	2,202,402	-	-	2,240,788	2,236,738	100%

BUDGET DISTRIBUTION

(Amount In Thousand Pesos)

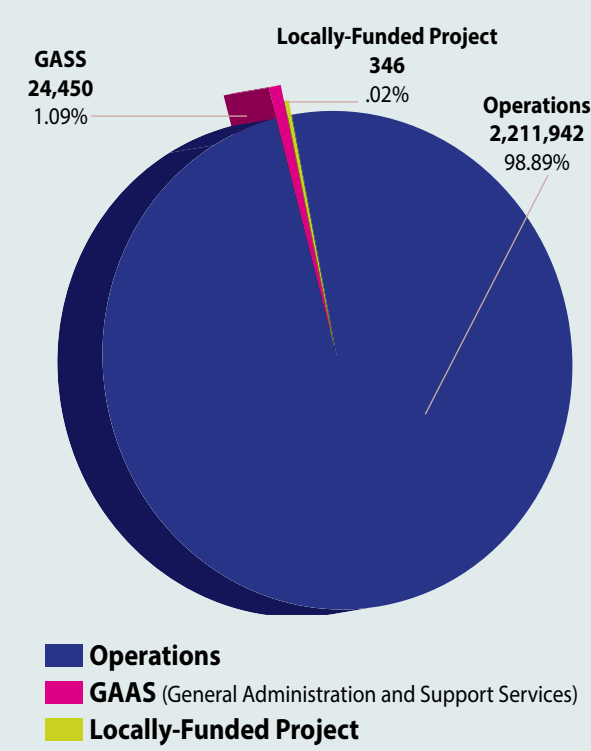
Loyalty Recognition

RECIPIENTS OF LOYALTY AWARD

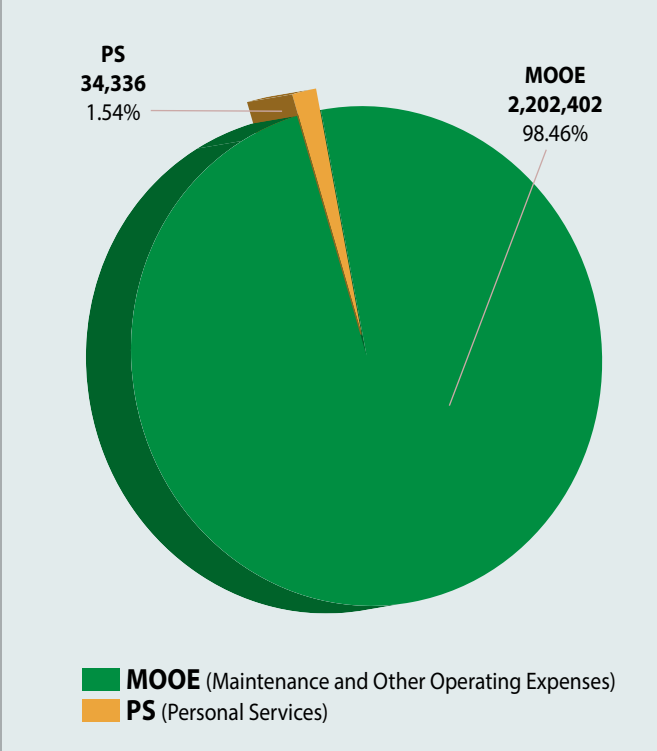
(Per CSC MC No. 06, s. 2002)

No.	Name	Period of Continuous Government Service	No. of Years in the Gov't Service with Corresponding Loyalty Award Received
OD			
1	Maria Teresa B. de Guzman	01-01-1990 to 12-31-2015	20
FAD			
2	Anita E. Gorgonio	01-02-1995 to 01-01-2015	15
STSD			
3	Alicia L. Asuncion	06-18-1975 to 06-17-2015	35
4	Ma. Daisy A. Demoni	09-26-1990 to 09-25-2015	20
5	Peter Gerry P. Gavina	04-01-2005 to 03-31-2015	5
STMERPD			
6	Imelda S. Sario	10-05-1979 to 10-04-2000 10-05-2000 to 10-06-2015	30
7	Vergel P. Rebuta	09-01-1995 to 08-31-2015	15

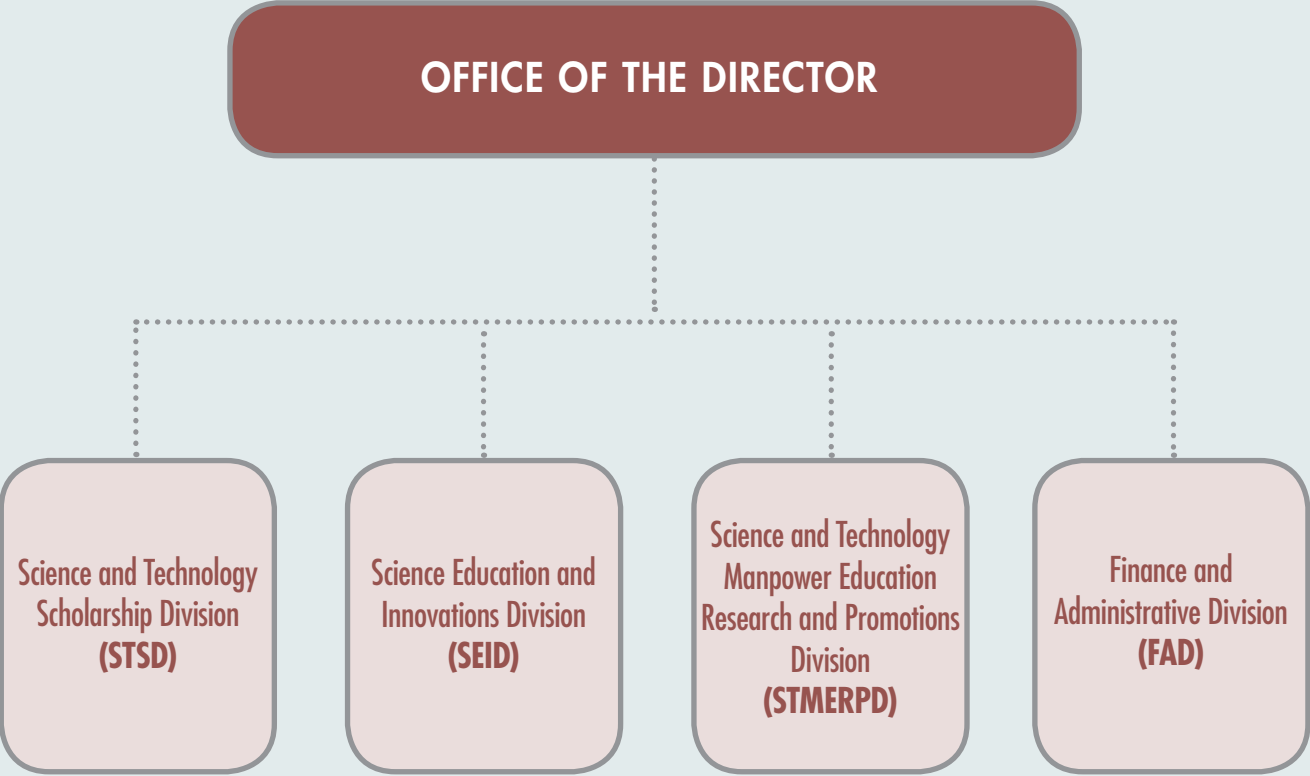
Actual Expenditure FY 2015



Per Major Expense Class



Organizational Chart



Key Officials



Officers and Staff



OFFICE OF THE DIRECTOR



FINANCE AND ADMINISTRATIVE DIVISION



SCIENCE AND TECHNOLOGY MANPOWER
EDUCATION RESEARCH AND PROMOTIONS DIVISION

Officers and Staff



SCIENCE AND TECHNOLOGY SCHOLARSHIP DIVISION



SCIENCE EDUCATION
AND INNOVATIONS DIVISION

SEI PUBLICATION COMMITTEE

JOSETTE T. BIYO
Chairman

RUBY R. CRISTOBAL
Vice-Chair

IMELDA S. SARIO
EDELMIRA B. BUSTAMANTE
PETER GERRY P. GAVINA
LIEZL M. DE LARA
ANITA E. GORGONIO
JEMMALYN MINIAO
Members

MANDATE PER EO 128

- Undertake science education and training;
- Administer scholarships, awards and grants;
- Undertake science and technology manpower development; and
- Formulate plans and establish programs and projects for the promotion and development of science and technology education and training in coordination with DepEd, CHED and other institutions of learning.

VISION

DOST-SEI shall develop the country's human resource capacity in science and technology required to produce demand-driven outputs that meet global standards.

MISSION

DOST-SEI's mission is to accelerate the development of S&T human resources of the country by administering undergraduate and graduate scholarships and advanced specialized trainings; promote S&T culture and develop innovative science education programs.



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